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# Causality and History: Modes of Causal Investigation in Historical Social Sciences

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## Abstract

Studies at the confluence of history and social science address issues of causation in three ways: morphological, variable-centered, and genetic. These approaches to causal investigation differ with regard to their *modus operandi*, the types of patterns they look for, their underlying assumptions and the challenges they face. Morphological inquiries elaborate causal arguments by uncovering patterns in the empirical layout of socio-historical phenomena. To this end, these inquiries draw on descriptive techniques of data formalization. Variable-centered studies engage causal issues by investigating patterns of association among empirical categories under the twofold assumption that these categories *a priori* have explanatory relevance and each category empirically has the same meaning across cases. Genetic analyses ground their causal claims by identifying patterned processes of emergence or production.



## INTRODUCTION

We explain by invoking causes. When our ambition is social-scientific, we seek to make these invocations as rigorous and broadly significant as possible. This means elaborating consistent diagnoses duly validated and abstracted from the reference to any particular. When, instead, we engage historical objects as such, that is, in light of their historical temporality, we find ourselves on the shores of irreducible particulars, which we cannot avoid acknowledging. A priori these two epistemic orientations do not go along with each other. How, in these conditions, do studies at the confluence of history and social science address issues of causation?

This article proposes to distinguish three broad approaches to causal investigation in historical social sciences. All three are exercises in pattern identification. Morphological inquiries apprehend causality by uncovering patterns in the empirical layout of socio-historical phenomena. Variable-centered studies infer causal claims from patterns of association among empirical categories. Genetic analyses elaborate causal arguments by identifying patterned processes of emergence or production. Besides their *modi operandi* (i.e., the way in which they proceed) and the types of patterns they look for, these three approaches can be contrasted in light of their starting point, their underlying assumptions, and the challenges they face.

A morphological approach tracks formal structures in the apparent maze of historical phenomena. To this end, it draws on descriptive techniques of data formalization. Once formal patterns have been laid bare, this approach envisions them from a causal perspective. Key to this endeavor is the assumption that the systematic description of the forms and structures discernable in phenomena—their morphology—informs us about either their causes or their causal significance. Accordingly, morphological inquiries have to deal with three challenging issues: the tension between the inductive spirit that motivates them and the need to rely on exogenous analytical insights to make sense of patterns, the degree to which a technique of formal description incorporates a theory of social realities, and the possibility of artifactual results.

A variable-centered approach starts with a set of empirical categories under the twofold presumption that (a) these categories a priori have explanatory relevance and (b) each category empirically has the same meaning across cases. Through multivariate statistical analyses or comparative analyses of differences and similarities across cases, this approach probes patterns of association among the categories thus selected. Here the basic premise is that if these patterns of association are robust, they provide decisive clues for causal diagnoses. Given the centrality granted to inferences based on associations in this mode of inquiry, a variable-centered approach faces challenges related to the possibility of mistaken causal imputations (selection problems, omitted variables, spurious associations) or the lack of specification of cause-effect relationships.

A genetic approach grounds causal analysis in the specification of generative processes. It investigates how a type of effects or outcomes is brought about. At stake in this approach is the analytical specification and empirical validation of mechanisms of emergence or production. Historical objects lend themselves to this type of exploration insofar as their evidentiary basis makes it possible to trace the effectuation of change and to test claims about generative processes. For this approach the challenge lies, first, in the imperative to theorize the dynamics of these processes and the factors conditioning their emergence from a genetic standpoint and, second, in the devising of validation strategies.

The distinction between these three approaches to causal investigation is analytical. In practice, they may constitute different moments in the process of elaborating and validating systematic explanations. The point of distinguishing them is, first, to enhance our ability to become self-reflexive about the praxeology of our causal argument and, second, to investigate under which conditions modes of inquiry complement, or discipline, one another. As these few remarks underscore,

it should be clear that the primary purpose of this article is to map different ways of elaborating explanatory claims as we can observe them in the realm of historical social sciences. It is not to discuss the merits, or demerits, of specific perspectives on causation (e.g., Cartwright 2007, ch. 2; Harré & Secord 1973, p. 50; Holland 1986). While the mapping of practices of causal inquiry contributes to the debate on issues of causality, it is analytically different from a reflection on alternative conceptions of causes.

The universe of studies under review in this article therefore encompasses inquiries that (a) define their object in historical terms and (b) embark on an explanatory project that aims to be of significance beyond the specifics of this object. “Being defined in historical terms” here means “being situated in time by reference to chronological coordinates.” This categorization includes studies that account for the present in light of a past chronologically situated (e.g., Paschel 2016). A study is said to be “explanatory” insofar as it seeks to answer a “why” question (e.g., Andreas 2009, p. 2; Charrad 2001, p. xi; Chen 2009, p. 7; Clark 2016, p. 5; Loveman 2014, pp. 7–8). Its aim is social-scientific if the answer it provides is intended to apply to an empirical class as a whole in addition to particular historical cases subsumed to that class (e.g., Krippner 2011, p. 4; Prasad 2006, p. 38; Steinmetz 2007, p. 2).

## MORPHOLOGIES

Morphological inquiries go after the formal structure of a historical phenomenon or a class of historical phenomena. Consider Stovel’s (2001) examination of lynchings in the Deep South between 1882 and 1930. Based on yearly data at the county level, this study sets out to identify “common patterns” (Stovel 2001, p. 859) in the local histories of white on black lynchings. Using techniques of formal description and reduction (optimal matching and block modeling), Stovel identifies eight temporal patterns that can be contrasted in terms of the clustering, frequency, and timing of lynchings. Narrowing the focus to Georgia, she then examines the distribution of the four types of lynching distinguished by Brundage (1993, ch. 1)—mob action, terrorist attacks, personal vengeance, and posse lynchings—across counties classified by their sequential profile. Temporal patterns point to different modalities, and thus different etiologies, of racial violence. Counties with lynchings distributed over time (pulse patterns) were more likely to experience mob actions and terrorist attacks, that is, ritualized forms of lynching. Conversely, counties in which the lynching history was marked by bursts and fluctuating tempos were more prone to less ritualized forms of murder—personal revenge and posse lynchings (Stovel 2001, p. 865). The social organization of racial violence appears to underlie its temporalities.

## Phenomenal Patterns

Stovel’s (2001) inquiry exemplifies the three characteristic features of a morphological approach to historical causality. First, studies cast in this mode explore the empirical layout of phenomena situated in time and space. The prime motivation for this empirical work is to probe the existence of patterns or regularities. These can be conceptualized by reference to population characteristics, geography, time, relations, or positions. The standpoints embodied in these patterns do not exclude one another. Demographic and ecological morphologies of population characteristics often are temporally patterned. Spatial morphologies can be interpreted in positional terms. Positions, in turn, can be inferred from relational structures.

Demographic and ecological patterns highlight the characteristics of a population analyzed from the perspective of vital events and life-course attributes (e.g., Breen 2000, Deng & Treiman 1997, Petev 2013). While the concept of population originally applied to biological individuals,



it has been extended to organizations (Carroll & Hannan 2000). Spatial patterns point out how socio-historical phenomena structure, and are structured in, geographic space. Forms of residential segregation are a telling illustration thereof (Grigoryeva & Ruef 2015). Maps provide a visual representation of spatial patterns through the display of the spatial distribution of events (e.g., Baller & Richardson 2002, pp. 879–81; Tolnay et al. 1996, p. 791) or of local indicators of spatial autocorrelation indicating geographic clustering (Whitt 2010, p. 157).

With temporal patterns, the focus is on the structuring of phenomenal time. Their formats depend on the type of temporality being scrutinized. Evolutionary patterns bring into relief the formal properties of a class of events or phenomena as they take place in chronological time (Noymer & Garenne 2000). Sequential patterns describe regularities in the temporal layout of successive states (Abbott & Hrycak 1990, Bison 2010, Blair-Loy 1999, Giuffrè 1999). The event patterns that event structure analyses yield objectify necessary antecedents among a chronological set of occurrences (e.g., Dixon 2008, Ermakoff 2015, Griffin 1993, Isaac et al. 1994).

Relational patterns capture the formal structure of one or several types of relations. The bulk of the morphological focus has been on interindividual relations among, for example, activists (Hedström 1994), artists (Uzzi & Spiro 2005), business partners (van Doosselaere 2009), criminals (Smith & Papachristos 2016), debtors and creditors (Hillmann 2008a), event participants (Accominotti et al. 2018), information providers (Erikson & Bearman 2006), military allies (Barkey 2008, pp. 48–54), and recommenders (Parigi 2012). This perspective of analysis can be expanded to collective actors (Franzosi 2010b, Wang & Soule 2012) and nonagentive entities such as narrative clauses (Bearman et al. 1999).

Positional patterns describe how a set of entities are positioned vis-à-vis one another. These entities can be actors located in a field of competition and oppositions (Bourdieu 1988, Sapiro 2014, Slez & Martin 2007), individuals holding equivalent positions in a network structure (Bearman 1993, Gould 1996, Hillmann 2008b, Padgett & Ansell 1993), or textual elements (McLean 2007, p. 124; Monroe et al. 2008; Rule et al. 2015; Schonhardt-Bailey 2006, ch. 7–8).

### Formal Descriptions

The second distinctive feature of a morphological approach is the use of one or several techniques of data formalization and reduction. Local and global measures of spatial clustering underpin scatter plot maps of geographic patterns. Network analysis objectifies relational structures and positional characteristics within these structures. Coding based on story grammars extracts relational data from narrative texts (Franzosi 2010a, ch. 2). Correspondence analysis, cluster analysis, co-occurrence approaches to content analysis, discriminant analysis, multidimensional scaling, and structural network methods shed light on patterns of positions. Sequential analysis, event structure analysis, and longitudinal analyses of events explore the structuration of time.

As a result of this plurality of formal techniques, the same class of phenomena lends itself to various morphological investigations. Consider the study of contention. Sandell (2001) identifies the evolutionary patterns underlying the growth trajectories of organizations in three social movements (temperance movements, free churches, and trade unions) in Sweden between 1881 and 1930 (pp. 685–89); Biggs's (2005, pp. 1699–703) estimate of the cumulative distributions of the sizes of strikes (i.e., the number of firms or workers on strike) in Chicago (1886) and Paris (1889) shows that these distributions follow a power law. From the standpoint of a relational morphology, Gould (1991, p. 724) investigates variation in residential levels of insurgency during the bloody week of the Paris Commune (May 21–28, 1871) given the structure of linkages among neighborhoods created by enlistment overlaps (National Guardsmen enlisted in military units outside their neighborhood of residence). Using the information provided by court data

on conflict, cooperation, kinship, economic and friendship ties in seventeenth-century western Anatolia, Barkey & Van Rossem (1997, pp. 1364–71) relate peasant contention to a village' position in the network regional structure.

### From Forms to Causes

Once formalized, phenomenal patterns inform causal claims in two ways. First, they provide the empirical bases for inferential clues. For instance, having laid bare patterns of intergenerational transmission of status in eighteenth- and nineteenth-century China, Song et al. (2015, p. 596) observe that in patrilineal societies, the characteristics of patrilineages are “shaped by the characteristics of male ancestors who lived many generations ago.” Investigating the trade routes adopted by ship captains employed by the East India Company between 1600 and 1833, Erikson (2014) infers from this relational data claims about the information transmitted from ships to ships via social networks, the captains' propensity to use this information for their own private commercial dealings, and the effects of such opportunistic commercial behaviors on the East India Company's standing among its competitors. Balian & Bearman (2018, pp. 213–19) explore the temporal order of politically motivated killing events in Northern Ireland (1969–2001) to explain conflict continuity.

Second, the focus on specific phenomenal patterns can help probe the empirical relevance of a causal claim or hypothesis. Hillmann & Aven (2011) test the claim that local closure conditions the significance of reputation as a monitoring mechanism by examining patterns of entrepreneurship networks in imperial Russia between 1865 and 1915. Brown (2000, p. 662) compares the event structures of two instances of union drives in Chicago, Illinois, and Gary, Indiana (1919–1920), to probe the argument that in a split labor market context, employers adopt a racial divide-and-rule strategy when “unions develop racially inclusive organizing strategies and minority workers are (or have the potential) to become militant.”

### To See and to Craft

Three issues pose a challenge to a morphological approach to causation. First, the need to interpret phenomenal patterns may find itself at odds with a strong commitment to induction. A morphological mode of causal inquiry betrays a great deal of suspicion toward any hard-nosed explanatory precommitment: “theory involves denying data” (Bearman et al. 1999, p. 508). In letting the data speak for themselves, morphological explorations actually have the ability to uncover regularities that modeling hypotheses and aggregate measures fail to capture (Abbott & Tsay 2000, p. 26; Stovel et al. 1996, p. 388). A phenomenal pattern, however, warrants neither intelligibility nor interpretation. When the task is to causally account for its existence, the hints provided by a formal structure may stop at the threshold of a bundle of processes—some of them confounding in terms of outcome—that form an intricate causal complex (Bloome 2014, p. 1197). To disentangle the web, other empirical observations become necessary along with theoretical claims to connect the dots. Theory then gets surreptitiously brought in through some back door.

Second, the amount of theoretical import a technique of formal description brings in raises the question of the extent to which built-in assumptions shape analytical diagnoses. While techniques of formal description operate as magnifying lenses—powerful enough to enable analysts to discern structures that would otherwise remain shapeless and therefore invisible—the lenses these techniques provide are not theoretically neutral. In “parsing the social world in particular ways,” these techniques bring in “elements of an implicit social theory” (Abbott 2001, p. 189). For instance, block modeling assumes that actors who display the same pattern of ties, and thus can

be considered equivalent in terms of structural positions, develop a sense of identity and interests related to their position (Bearman 1993, pp. 10–12). Optimal matching imposes a “unilinear” conception of social reality (Abbott & Tsay 2000, pp. 12–13) that contrasts with action-based formalizations of sequences, such as the one developed by Abell (1987), and that cannot adequately handle interacting sequences (Bison 2010, p. 425).

Third, analysts cannot avoid examining whether their interventions in the course of making a technique operational have implications for the reliability of the findings. Techniques of data formalization vary with regard to the number and the scope of the interventions they imply. At one end are methods that request from the analyst a substantial degree of involvement (optimal matching, network analysis, event structure analysis). At the other are more hands-off methods such as linguistic and co-occurrence approaches to content analysis (Franzosi 2010a, Reinert 1998). Yet, even in the latter case, analysts exercise some discretionary choices (Franzosi 2010a, p. 52; Vicari 2010, pp. 510–13). As the lenses of the technique get set up, they also prove to be relative. Depending on the operational choices being made, patterns have a different configuration. Could it be, then, that the patterns we discern are the products of the lenses we use? “The danger lies...in the possibility of substantial interpretation of artifactual results” (Abbott & Tsay 2000, p. 16). One direction for future methodological developments lies in the elaboration of sensitivity and diagnosis tests for assessing which interventions modify findings and to what extent.

## VARIABLE-CENTERED

A variable-centered mode of causal investigation infers causal claims from patterns of association among a set of empirical categories. This mode of causal inquiry draws on two families of methods. Multivariate statistical analyses probe the statistical significance of correlations and imputed effects. Comparative analyses sort out combinations of attributes across cases. Each operational procedure leans on validation requirements. Multivariate statistical analyses adjudicate explanatory hypotheses in light of significance and robustness tests. Comparative analyses rely on standards of logical inference and simplification to arrive at parsimonious expressions of causal equations.

Whether the analysis is statistical or comparative, two cardinal assumptions undergird the formulation of causal claims. The first is a conception of cause as a reliable association between an antecedent and an outcome. The second assumption posits that each category included in the set of possible explanatory factors “captures a dimension of variation” [Ragin 2014 (1987), p. xxiii] and has the same empirical meaning for all the cases under consideration (assumption of semantic uniformity). An empirical category that satisfies this twofold assumption qualifies as a variable. The two following studies exemplify the *modus operandi* of each approach.

Loveman & Muniz (2007) inquire into the whitening of the Puerto Rican population in the first half of the twentieth century. After having established that the vast majority of Puerto Rico’s whitening between 1910 and 1920 was the result of intercensus racial reclassification (Loveman & Muniz 2007, p. 920) and that this reclassification was not the by-product of demographic factors or bureaucratic practices, they examine whether individuals were reclassified as whites because they acquired new traits (boundary crossing) or because the criteria for ascribing racial status changed (boundary shifting). To do so, Loveman and Muniz proceed in several steps: (a) They estimate the counterfactual probability of being white in 1920 had the “association between a given characteristic and enumerators’ propensity to classify individuals as white” remained the same between 1910 and 1920; (b) they compare this simulated probability with the actual probability of classification as white in 1920; (c) they observe that, according to this counterfactual analysis, only a relatively small proportion (one-fifth) of the difference between simulated and actual probabilities can be



imputed to changes in individual characteristics; and (d) they corroborate further the claim that changes in the enumerators' criteria account for most of Puerto Rico's whitening by assessing the probability of a child's racial classification in light of a multinomial logistic regression including, among others, the race of mother and father as independent variable.

Beck (2014) sets out to explain the revolutionary wave that swept Middle Eastern and North African countries in 2011. The dependent variable captures variation in levels of contention in sixteen countries: "no protest," "protest," "revolutionary situation" and "political revolution" (Beck 2014, p. 218). Previous work on revolutions and transnational movements (e.g., Goodwin 2001, Hung 2011, Kurzman 2008, Sohrabi 2002) informs the selection and construction of five independent variables at the country level: embeddedness in the world culture, economic pressure, polity measure of democracy, demographic pressures, and a history of opposition (Beck 2014, pp. 210–11). To identify patterns of association between these independent variables and the four outcomes defined as explananda, Beck relies on the method developed by Ragin (2008, 2014), which has become standard in comparative historical analyses. Drawing on Boole's algebra and the calibration of cases' degrees of membership to empirical sets operationalized as variables, this method (hereafter, Boolean comparative analysis) systematizes the recording of differences and similarities across cases, and minimizes the patterns of associations thus obtained to produce a parsimonious "causal recipe" [Ragin 2014 (1987), pp. xxiii, xxviii]. For four of the six cases of revolutionary situation in 2011, a Boolean comparative analysis identifies two shared conditions (a country's relative embeddedness in world society, and exclusionary political institutions) and two additional conditions: no significant youth bulge (Tunisia) and a history of opposition against the state (Syria, Egypt, Yemen) (Beck 2014, p. 211). Secondary analyses discuss which transnational, state-centered and subnational factors were at play in the other cases (Beck 2014, pp. 212–14).

These two families of methods can be combined (e.g., Amenta et al. 2005, Ebbinghaus & Visser 1999). They can be used for inductive (e.g., Braithwaite et al. 2015, pp. 705–6; Owens 2014, pp. 423–29) or testing purposes (e.g., Fox 2010, McCammon et al. 2008, Schofer 2003). Which challenges might they encounter? Selection biases crucially jeopardize the reliability of causal inferences. Studies cast in a variable-centered mold of investigation have therefore to confront the possible biases induced by the selection of cases, sources, and variables. This is the first challenge. A second challenge lies in the handling of historical time and the risk of reification inherent to the language of variables. The third challenge concerns the causal interpretation of patterns of association among variables. Here the focus is on mistaken or underspecified causal imputations.

### Selecting, Constructing

Let us first consider the possibility of biases induced by the selection of cases, sources, and variables.

**Cases.** In a variable-centered framework, a case designates a unit on which variables are measured or classified (King et al. 1994, p. 117; Gerring 2007, pp. 22–24). Case selection is an issue insofar as it induces faulty inferences regarding either the estimation of causal effects (multivariate statistical analyses) or the identification of explanatory factors (comparative analyses). Selection biases sneak in through different cracks depending on whether analysts (a) choose cases in light of their values on the dependent variable (that is, selecting on the dependent variable) (Geddes 2003, p. 92), (b) ignore the possibility of endogenous selection whereby cases select themselves into the category of interest (Przeworski & Limongi 1993, p. 62), or (c) fail to clearly delimit the population from which the cases are drawn (Hug 2003, p. 258).

As far as selection procedures go, multivariate statistical analyses deal with the possibility of selection-induced biases by randomizing samples (e.g., Dobbin & Sutton 1998, p. 462), randomizing control groups when the explanandum is a rare type of events (Hechter et al. 2016, p. 175), and sampling on all possible outcomes (Hagen et al. 2013). Decisions to exclude cases from an empirical class (e.g., Lange 2009, p. 53; Prechel & Morris 2010, p. 344) call for renewed scrutiny of selection criteria and the robustness of the causal diagnosis. For comparative analyses, the challenge lies in a clear and rigorous delineation of the bounds assigned to the theory being tested or explored. Two strategies are possible. One specifies the empirical class to which the theory is expected to apply in light of initial conditions or the attributes implied by the theory (Geddes 2003, pp. 95–98). A second strategy selects cases on the basis of explanatory variables (King et al. 1994, pp. 137–38; Mahoney & Goertz 2004, p. 659).

The devil, however, lies in the details. Selecting cases on the basis of independent variables will be of little help if these are chosen by procedures correlated with the dependent variable (King et al. 1994, p. 115). Similarly, selecting in light of explanatory categories will not do much if these categories are so loosely defined that cases can be assigned values without much constraint. For instance, identifying cases of state breakdown and peasant revolt remains an exercise in approximation as long as we do not know when a state can be said to have broken down and when conflicts in rural areas can be classified as peasant revolt (e.g., Mahoney & Goertz 2004, p. 667).

**Sources.** Let us define as primary sources data and statements that historical actors—individual or collective—produce about themselves. Primary sources are liable to biases of different sorts, which need to be checked by examining how actors produce them. For instance, checking the potential descriptive and selection biases of newspaper reports requires identifying the factors that lead reporters to either be more attentive to some events or more willing to report them (Davenport et al. 2011, p. 157; Earl et al. 2003, p. 587; Myers & Caniglia 2004, p. 531).

To code or construct their case(s), it is routine for historical social scientists comparing macro entities that span the medium or the long run to rely on secondary sources, that is, statements about historical actors that did not originate from them. The practice has elicited two main criticisms: (a) Secondary sources may not be fine-grained enough to lend themselves to unambiguous coding and classification (Kreuzer 2010, p. 372). (b) They allow their users to select and interpret them as they see fit (Goldthorpe 2007, pp. 33–36). As a result, they open the door to convenience and confirmation biases: the practice of relying on the sources most readily accessible and of giving precedence to accounts confirming one or several preferred hypotheses (Lustick 1996, p. 608; Møller & Skaaning 2018, p. 3).

To check such biases, it is obviously judicious to be transparent about “the analytical lenses through which [sources] have been analyzed,” and about historiographic controversies (Kreuzer 2010, p. 372; Lustick 1996, pp. 615–16). Similarly, selecting secondary sources that invoke definitions consistent with the analyst’s, are theoretically not in line with the analyst’s vantage point, and draw on updated evidence may provide additional checks (Møller & Skaaning 2018, pp. 8–13). These recommendations and selection criteria notwithstanding, the debate on secondary sources may easily lose sight of the key point: Historical social scientists draw on these sources to extract empirical claims—claims in light of which they impute values to variables and code their cases. These claims rest on the categories and the concepts they use. However scrupulously they abide by the selection criteria noted above—definitional consistency, theoretical discrepancy, and updated evidence—if these categories and concepts are loose, empirically indeterminate, and prone to self-validating arguments, the validation problems pointed out by critics remain.

In fact, analysts relying on secondary sources are unlikely to confront the liabilities of their dependence on these sources unless they enter the fray, discuss evidence, gauge possible biases,



consider objections to descriptive inferences and weigh correctives provided by other secondary accounts for the empirical claims that are most crucial to their coding and argument. This means adopting a critical stance and, for the sake of these empirical claims, putting on the lenses of the historian. Quite revealing on this score is, for instance, the exchange between Kreuzer (2010), Boix (2010), and Cusack et al. (2010) about the origins of electoral systems in the late nineteenth and early twentieth centuries.

**Variables.** Both multivariate and comparative analyses start their investigation by selecting a set of variables (Griffin & Ragin 1994, p. 10; Rohwer 2011, p. 733). Ultimately, their causal diagnoses are a function of the empirical categories they select for explanatory purposes. If the selection is off the mark, the diagnosis will be off as well. This basic observation calls for a critical scrutiny of the criteria analysts use to select variables (Amenta & Poulsen 1994, p. 25). The issue of variable selection, furthermore, bears upon the issue of variable construction and measurement insofar as the use of diffuse concepts, which by setup encompass multiple phenomena at once, short-circuits the specification of empirical boundaries and of additional variables (Geddes 2003, p. 146; Hall 1999, p. 162). The problem is of particular significance for causal investigations deployed on a grand scale and that, as a result, cast a wide net on historical phenomena.

### Time and Reification

How do causal assessments set in the language of variables deal with the temporality of historical phenomena? Multivariate statistical analyses apprehend the time of history by modeling the remanence of the past, shifts and ruptures, and the present time of historical actors. Long-term correlations (e.g., Dell 2010), lag effects (e.g., Møller et al. 2015, Wimmer & Min 2006), and autocorrelations capture the legacies of the past. Models that permit parameter variation help identify shifts and ruptures in relations among variables across temporal contexts (Griffin & Isaac 1992, Wawro & Katznelson 2014, Western & Kleykamp 2004). By modeling cohort and period effects (Voss 1993, ch. 5), event rhythm (Andrews & Biggs 2006), cycle effects (Myers 2000), and the impact of duration on the probability of occurrence of an event (Minkoff 1999), event history analysis highlights different modalities of historical actors' present time (Isaac et al. 2006).

While macro comparisons that do not resort to Boole's algebra historicize variables by making their effect time dependent (e.g., Ertman 1997, pp. 27–28; Orloff & Skocpol 1984, pp. 741–43; Slater 2010, pp. 12–14), Boolean comparative analysis proves much more handicapped when investigating the temporality of its historical referents. Consider Foran's (2005) Boolean analysis of third world revolutions, which examines 39 cases classified as short-lived, reverted, attempted, political, and nonexistent revolutions. For cases coded as political revolutions, this comparative analysis yields the following equation:

$$\text{Political revolution} = Bcde + aBce \text{ (Foran 2005, p. 243).}^1$$

*B*, *c*, *d*, *e*, and *a* designate explanatory factors conceptualized as variables. *B* means a repressive, exclusionary, and personalist state; *c* the absence of a political culture of resistance; *d* the absence of an economic downturn; *e* the absence of a world-systemic opening; and *a* the absence of dependent

<sup>1</sup>The + sign in Boolean algebra designates the logical operator "or." By convention, upper and lower case letters respectively denote the presence and absence of explanatory variables. The absence of a given variable actually means the presence of the residual set of empirical conditions that constitute the complement of this variable. For instance, *a* in Foran's (2005) Boolean analysis of third world revolutions designates the set of economic developments that do not fit the notion of dependent development (designated by variable *A*).

development (Foran 2005, p. 18). From this equation we infer that two combinations of factors are associated with the outcome of political revolution:  $Bcde$  or  $aBce$ . This approach to causal claims has three implications regarding the epistemic status of time in general, and historical time in particular.

First, in this representation of causality, explanatory variables are deprived of temporality. They have no time of their own. Each is, so to speak, temporally transparent, without substance. A Boolean equation flattens out the time of causal factors and outcomes (Goldthorpe 2007, p. 46). Second, their effect is not time varying or time dependent. Third, and correlatively, a Boolean equation establishes no temporal order between variables. Within each combination of factors ( $Bcde$ ,  $aBce$ ), the factors at play are not indexed on a temporal order of succession. These three implications—the lack of intrinsic temporality, the lack of temporal effects, and the lack of temporal order—explain why comparative analysts resorting to Boole's algebra can move around, and factor, explanatory variables. All in all, a Boolean comparative analysis abstracts causes from their temporal unfolding and thereby conveys a static representation of historical causality.

Analysts may choose to assign temporal characteristics to variables (Caren & Panofsky 2005, p. 164). The drawback of this procedure is that it very quickly leads to a proliferation of variables and undercuts the prospect of parsimonious equations. Furthermore, assigning temporal characteristics does not fundamentally alter the atemporal argumentative logic inscribed in the Boolean comparative setup. Variables endowed with their temporal characteristics still operate as monads producing effects devoid of temporality.

More broadly, an extensive use of the language of variables applied to history is prone to reification. We reify concepts and categories as we transmute them into causal agents and, in so doing, hollow out their empirical content. The discursive marker of this usage is an imputation of agency [e.g., “institutions...are especially capable of seizing opportunities provided by contingent events”...“contingent events select institutions” in Mahoney (2000, pp. 515, 519)]. Reified concepts move things around. They do the action. We then forget that they are but shorthand: convenient tools abstracting specific empirical realities away from the configurations in which these realities are embedded in order to operationalize theoretical arguments. As causal agents, variables tend to wrap themselves in the mantle of autonomous, self-propelling and self-enclosed entities. They acquire monad-like capacity.

### From Associations to Causes

The causal interpretation of patterns of association among variables faces two issues. The first is the possibility of mistaken causal imputations. Associations between variables provide a basis for causal inferences only if these associations can be shown to be reliable. Measurement errors (Liebertson 1994, p. 1232), omitted explanatory variables, confounding factors, reversed causation between dependent and independent variables, and artifactual correlations (Koçak & Carroll 2008, Voas et al. 2002) crucially imperil the prospect of sound causal inferences about historically situated phenomena. The second issue relates to the lack of clear-cut specifications of how a given factor produces its effects on an outcome (the black-box problem). I discuss each issue in turn.

Multivariate statistical analysis addresses the possibility of mistaken causal imputations by paying attention to data-generating processes; by modeling, and correcting for, case selection; and by drawing on various estimation techniques (Gangl 2010; Hug 2003; Przeworski et al. 2000, pp. 279–89)—techniques that historical inquiries have been using for their own purposes. Fixed effect models control for the impact of omitted variables resulting from unobserved or unmeasurable heterogeneity (e.g., Goldstein & Haveman 2013). Historically grounded investigations can hone their causal diagnoses by relying on a counterfactual framework, which estimates the

difference in outcome resulting from exposure to a given condition (treatment) compared with the counterfactual world in which such exposure would not have taken place (e.g., Lin & Tomaskovic-Devey 2013). To check reverse causation and endogeneity, historical inquiries can take advantage of the chronological character of their data (Kim & Pfaff 2012, p. 201) and of natural experiment settings bequeathed by history as a result of events exogenous to the dependent variable (instrumental variable design) (e.g., Banerjee & Iyer 2005; Braun 2016, pp. 141–43).

Boolean comparative analyses are no more immune to omitted variables (unobserved heterogeneity), reversed causation, and measurement and coding errors than multivariate statistical analyses. While statistical multivariate analysis has devised diagnoses for model misspecification due to omitted variables, Boolean comparative analysis has not (Cartwright 2007, p. 35; Schneider & Rohlfing 2016, p. 561). Practitioners have addressed the issue by interpreting contradictory combinations, i.e., combinations of factors yielding divergent outcomes, as indicative of the need to include additional explanatory variables (e.g., Brown & Boswell 1995, p. 1502). The issue of reversed causation remains unaddressed, most likely because of the method's difficulties in handling time. Measurement and coding issues, in contrast, have received systematic attention (Maggetti & Levi-Faur 2013). Causal recipes are highly sensitive to coding decisions and the method used to calibrate the degree of membership of cases to fuzzy sets (Goldthorpe 2007, pp. 46, 226–27; Hug 2013, pp. 260–61; Lucas & Szatrowski 2014, p. 47). In the absence of clearly specified empirical criteria, these decisions rest on the analyst's subjective appreciation.

In addition, assessments based on various simulations have generated doubts and debates regarding the ability of Boolean comparative analysis to adequately identify correct patterns of association among variables (Fiss et al. 2014, Lucas 2014, Lucas & Szatrowski 2014, Ragin 2014). In particular, simulations generating a universe of cases from a given Boolean causal equation show that the procedures assigning outcome values to nonexistent combinations of conditions yield causal recipes at odds with the true equation (Seawright 2014). These methodological observations raise concerns regarding the reliability of the approach as a technique of inductive causal inferences while suggesting that the method is best used as a heuristic device to explore possible lines of research (Collier 2014, p. 124; Goldthorpe 2007, p. 54; Lieberman 2004, p. 13).

Last, but not least, neither correlation coefficients nor the algebraic expressions yielded by Boolean comparative analysis tell us how causes produce their effects. We learn which factors, and which combinations of factors among those initially selected, are associated with the outcome to be explained. But we do not know the *modus operandi* of these causes—how they operate. In this analytical framework, the way in which a cause (i.e., an independent variable) produces, or contributes to producing the outcome (dependent variable), remains a black box (Goldthorpe 2007, p. 53; see also Gangl 2010, p. 39).

## GENETIC

A genetic approach apprehends causality through the systematic investigation of generative processes. Consider Petersen's (2001) account of rebellion against Soviet occupation in Lithuania after World War II. This inquiry aims to explain the emergence of an underground social movement by examining how individuals get involved in high-risk activism. To do so, Petersen theorizes triggering mechanisms, which initiate involvement, and sustaining mechanisms, which prevent disengagement. He then proceeds to assess the plausibility of these processes in light of first-hand evidence—testimonies and interviews—documenting both their occurrence and the factors, whether group-based or situational, conditioning their emergence. Regarding this last point, Petersen argues that social relations displaying the characteristics of community relations—i.e., relations that are direct, many-sided, reciprocal, and pervaded by a sense of equal status (Taylor 1988,



p. 68)—allow individuals to overcome collective action problems. By way of consequence, these relations increase the likelihood of mechanisms triggering and sustaining involvement in high-risk activism.

Both the analytical and empirical investigations deployed in Petersen's inquiry are geared to the identification of a generative process—the process generating high-risk political activism. Underlying this explanatory project is the epistemic presumption that in analyzing how change—i.e., a shift in states—takes place, we accede to the etiology of the effects, or outcomes, we want to explain. The study thus addresses the question “why?” through the question “how?” It tackles this question by specifying a set of mechanisms, defined as “specific causal patterns that explain individual action in a wide range of settings” (Petersen 2001, p. 10). And it explores the empirical relevance of these mechanisms in light of primary historical evidence.

Studies committed to a genetic mode of causal exploration through history are dealing with two major tasks. First, they need to theorize the process whereby a type of change or outcome is brought about. As Petersen's (2001) analytical strategy makes clear, the notion of mechanism provides a rallying point for this endeavor. Second, they need to validate their theoretical claims about generative processes. Each task raises challenges of its own. Theorizing a generative process requires specifying not only how a set of units undergoes change but also the factors conditioning the occurrence and likelihood of this process. The task of validation, for its part, requires tracing a generative process in time or, alternatively, when processual evidence is not available, gauging observable implications. A simulation exercise can complement both validation strategies.

### Mechanisms

Definitions of mechanisms abound. They differ with regard to the units of analysis they posit (events, phenomena, entities, actors, variables) and the claims they make about whether mechanisms are observable, predictable, and grounded in a probabilistic understanding of causality (e.g., Bates et al. 1998, pp. 12–13; Elster 1998, p. 45; George & Bennett 2005, p. 137; Hedström & Swedberg 1998, pp. 11–13; Little 1991, p. 15). Underneath this profusion of definitional stances runs an injunction for analytical specificity: If the identification of a generative process is specific enough, we should be able to provide an analytical description shorn of the reference to any case and its specifics. From this perspective, a mechanism can be defined as the analytical specification of the effectuation of change. This definition is consistent with the different definitional takes mentioned above.

Two consequences follow. First, we cannot identify a generative process unless we analytically describe how a set of units—however we name them—undergoes change. This work of analytical specification is necessarily dynamic and sequential. Second, we can hardly claim to have theorized a mechanism if we leave the factors that condition its likelihood unspecified. The two go hand in hand. Without the specification of conditional factors, both the generalizability and refutability of the mechanism are questionable. Conditional factors, it should be noted, are more specific and pinpointed than scope or boundary conditions, i.e., the universe of situations in which the process or phenomenon under consideration has been shown to occur (King et al. 1994, p. 101). While scope conditions broadly delimit the possibility of a theory, conditional factors state under which situational and contextual parameters a generative process is likely to take place.

Consider the distinction between behavioral and inferential processes of collective alignments in situations of collective uncertainty (Ermakoff 2008, ch. 6). Alignment is behavioral when actors commit to a line of conduct given the information they have about others' commitment. This process unfolds if actors have access to this information and perceive their sense of risk

to be assuaged. When these conditions do not prevail, the choice of a line of conduct is conditional on the formation of expectations about collective behavior. Actors can infer these expectations from the signals provided by either interpersonal contacts (local knowledge) or public events (tacit alignment). These provide the opportunity to coordinate expectations insofar as actors can presume among themselves a shared understanding of an event's impact on their collective stance.

## Levels of Analysis

At which level of analysis can we expect generative processes to be adequately specified? The distinction between levels rests on the distinction between units of analysis. An inquiry adopts a micro outlook when the individual actor is its unit of analysis. Such a perspective is large scale when it encompasses a high number of individual actors (e.g., Muller 2012). "Macro" refers to supraindividual realities of a composite character (e.g., Somers & Block 2005). "Meso," if need be, designates a single supraindividual entity (e.g., an organization) (e.g., Desai 2002). This clarification in hand, two considerations underscore why the requirements of clear-cut and refutable analytical specifications of generative processes are more difficult to deliver at the macro- or mesolevels than at the micro one.

For one thing, macrospecifications face the risk of bundling together processes that, although confounding with regard to their effects, should be differentiated and specified as distinct mechanisms (Johnson 2007, p. 118). More broadly, inquiries that strive to pin down generative process shoot themselves in the foot when they rely on notions of such empirical breadth that these are bound to evoke and conflate different phenomena at once. Claims cast in terms of critical juncture and path dependency are a case in point. A conjuncture is deemed critical insofar as its historical legacy is path dependent (Mahoney 2000, p. 513; Pierson 2004, pp. 68–70). In other words, the notion is primarily defined through its effects. This means that, apart from its consequential character, it has no content proper and is bound to blend multiple processes at once.

Furthermore, systematic accounts of large-scale historical processes underscore that we cannot presume to understand how collectives behave and affect one another unless we pay attention to interactive dynamics in their midst (Andrews 2004, Markoff 1996, Stepan-Norris & Zeitlin 2002). In more analytical terms, intragroup dynamics condition group stance and, by derivation, intergroup dynamics (Ermakoff 1997, p. 418). It follows that to satisfy the specificity requirements of mechanism-based arguments claims about the connections between macroentities have to be explicated in terms of arguments involving actors, their interactions, and the outcomes of these interactions—in short, microarguments (Hedström & Swedberg 1998, p. 23; Lindenberg 1977; Raub et al. 2011). The point applies to phenomena that we usually view as the epitome of macro processes, such as industrial development (Chibber 2003) or the diffusion of nationalism (Wimmer 2013, ch. 3).

To say that the specification of generative processes ultimately calls for a microanalytical investigation is not to say that this investigation is bound to address social action in rational choice terms, contra the programmatic agenda of the analytical narrative framework (Bates et al. 1998, p. 12). The axiomatic theory of rational choice has been shown to lack empirical relevance in various domains of activity, including some in which decisional contexts and incentives would lead analysts to expect behaviors driven by utility maximization (DellaVigna 2009). Given this empirical evidence, an endorsement of rational choice a priori goes counter to the some of the analytical narrative approach's own methodological precepts, according to which analysts should evaluate causal claims by examining whether the assumptions fit the facts and the implications find confirmation (Bates et al. 1998, pp. 14–18).



### Analytical Specificity

If adopting a micro perspective does not mean committing oneself to a rational choice understanding of actions and interactions, it means instead arriving at a specification of generative processes precise and crisp enough so that it can be empirically probed and refuted (Jacobs 2015, pp. 56, 59). In this endeavor, formal analysis appears to be a *prima facie* natural ally. The point here is less about the use of symbolic language *per se* than about the search for a level of precision and specificity that makes claims about generative processes amenable to symbolic transcription. The potential benefits are threefold.

First, analyses that fulfill the precision requirements of formal claims help differentiate processes that standard usage collapses under the same descriptive category. For instance, collective action encompasses quite distinct processes of informational cascades (Kuran 1991, Lohmann 1994) and collective alignment (Ermakoff 2008). Power management in authoritarian regimes rests on different mechanisms of contention, supervision, and cooptation (Gandhi 2008, Svoblik 2012). The diffusion of innovative practices, such as the invention of the partnership system in late medieval Florence, involves processes of transposition, transformation, and feedback across network domains (Padgett & McLean 2006, pp. 1494–539).

Second, the search for analytical precision hones our attention to the “noise” of history, these apparent ‘small’ details that actually can carry considerable analytical weight” (Ermakoff 2008, p. xxvi; Greif 2006, pp. 333–36; Kalyvas 2006, ch. 8–9; Pfaff 2006, ch. 5–7). Theoretical specificity then has the potential of unearthing empirical observations that, without this analytical exposure, we would not notice because of their apparent insignificance. For instance, Chong’s (1991, pp. 55–71) game-theoretical analysis of the civil right movement underscores the significance of reputational concerns and their impact on the dynamics of interpersonal commitments. In delineating which pieces of information are worthy of attention, precise causal specifications, by the same token, direct attention to the type of evidence needed for refutation purposes.

Third, a high degree of analytical specificity invites analysts to pay systematic attention to the factors conditioning the likelihood of a generative process (e.g., Montgomery 2011, Stasavage 2003, p. 38). As the previous remarks about the regulative horizon provided by a microfocus suggest, these conditional factors, if duly theorized, refer to individual parameters (e.g., status, beliefs, positions, interests, resources). The heuristic gains derived from such a focus further relate to issues of generalizability and refutability. In specifying conditional factors, we make claims about mechanisms generalizable. This is the paradox: Arguments about generative processes achieve general significance and, to a certain extent, acquire predictive content when we specify them as conditional.

### Tracking Generative Processes

Once we have specified a generative mechanism, three validation strategies are conceivable: tracing its temporal unfolding, gauging observable implications, and simulating. Temporal tracing bets on the possibility of observing the mechanism *en acte* by documenting historical actors’ behaviors and beliefs. Analysts are likely to fall back on an empirical assessment of observable consequences when the evidence for tracing a mechanism in time is lacking. Simulation complements either temporal tracing or implication assessment by providing the opportunity to examine whether, and to what extent, the fit between simulated and actual outcomes corroborates causal claims cast in genetic terms.

**Temporal tracing.** This validation strategy traces a generative process in historical time by reconstituting the temporal sequence of actions and interactions leading to changes in behaviors,



cognitions and/or attributions (e.g., Ansell 2001; Bense 2008; Freeland 2001; Sewell 2005, pp. 232–44; Walder 2009). The analysis is dynamic and focused on actors' stances and experience. It tries to get as close as possible to their behaviors and/or subjective states (e.g., Adut 2005, Fujimura 1996, Go 2008, Gorski 2003, Haydu 2008). Underlying this research design is the epistemic claim that a cause is at play at a given moment in time if it operates through actors' beliefs or motivations (Ermakoff 2008, p. xxiii). Temporal tracing as a validation strategy thus implies (a) clearly delineating the groups of actors involved (since group and situation parameters condition mechanisms), (b) documenting action and interactions as they unfold in time (since the etiology at play lies in this temporal unfolding), and (c) adopting a forward-looking outcome (since any retrospective analysis starting with the outcome is likely to induce hindsight bias and stultify counterfactual insights).

This last point deserves attention. Accounts labeled as process tracing can easily let their empirical assessments be colored or informed by the knowledge of the outcome. At times, retrospective bias gets merged with a judgment of necessity—what happened was bound to happen—couched as a statement of fact or as a “retroactive prediction” (Kurzban 2004, p. 135). Subverting teleology requires, first, the ability to identify moments of collective indeterminacy in which collectives waver between different behavioral stances (Ermakoff 2015), and second, the ability to gauge the range of possible collective scenarios and their likelihoods at different points in the process (Eidlin 2016; Ermakoff 2008; Gerteis 2007; Haydu 2008). Of particular importance for both tasks is the specification of the methodological underpinnings grounding claims about historical possibilities.

Lurking in the background of this validation strategy are two questions. First, can we trace generative processes on different timescales? Second, what type of evidence is needed? The answer to the first question brings us back to the epistemic claim mentioned above: If a cause is at play at a given moment in time, we should be able to trace it through actors' behaviors, motivations, or beliefs. This claim points to two research protocols. One traces the schemes of thought, dispositions, and strategies of action displayed by one or several categories of actors over the medium or long range (e.g., Bargheer 2018, Biernacki 1995, Fligstein 1990, Fourcade 2009, Lachmann 2002, Swenson 2002). The other narrows the focus on moments of challenge and confrontation punctuating a long-term temporality under the presumption that these moments provide particularly magnifying lenses for analyzing historical actors' motives and understandings (Brubaker 1992, Geva 2015, Goldberg 2007, Loveman 2005, Steinmetz 1993, Zubrzycki 2016). Whether the analysis of these conjunctures is compatible with a language cast in terms of variables is worthy of critical scrutiny given the methodological requirements of process tracing indicated above (e.g., Capoccia 2005, pp. 21–22).

Second, which evidence is required to trace generative processes in the making? The task is to dig out a type of evidence documenting processes from the ground level. If the past is recent, interviews and surveys can prove up to the task (Fairbrother 2014, Kimeldorf 1999, MacKenzie & Millo 2003, Opp & Gern 1993, Seidman 1994, Straus 2006). If the past is too far removed, analysts rely on primary historical sources—i.e., sources produced by historical actors—of a behavioral or discursive type. Behavioral evidence records actions and their outcomes in time and space: administrative data (Gerteis 2007, Voss 1993), association membership (Riley 2005), legal records (Adams 2005, Fourcade 2011, Gould 2000), data provided by newsletters and gazetteers (Carruthers 1996, Su 2011), enlistment records (Traugott 2002), police reports (Ansell 2001, Pfaff 2006), electoral returns (de Leon 2015), and voting roll calls (Wilde 2007), among others.

Discursive evidence has the format of statements by contemporaries. On the public-private scale, these run the full gamut: parliamentary debates (Dobbin 1994), statements in newspapers (Babb 1996, Ellingson 1995, Jansen 2017, Sohrabi 2013, Wilde & Danielsen 2014), published accounts and memoirs (Göçek 2015), testimonies delivered before a collective body with a



mandate to subpoena (Ermakoff 2008), administrative correspondence and reports (Chibber 2003, Goldberg 2007), organizational record (Clemens 1997, Haydu 2008, Skocpol 1992), and accounts intended to remain confidential (diaries, letters, private notes) (Freeland 2001). In triangulating different types of documents pertaining to the process they investigate, analysts can seek to “emulate historical ethnography” (Emigh 2009, p. 12; Glaeser 2011).

Each type of source calls for checks and correctives. Statements produced at the time of an event, in its immediate wake, or in a setting geared to critical examination can be hypothetically presumed to be less prone to mistakes. Historical actors reporting on their, or others', actions, decisions, dispositions, motivations, beliefs, and understandings may have an interest in misrepresenting behaviors and subjective states, especially when these actors have high visibility or hold institutional positions (Golden 1997, p. 14). It is possible to gauge the likelihood of misleading statements by probing consistency and constancy (Anderson 2013, p. 9; Luong 2002, p. 21), the author's position, the context of production of the document and its formal structure (Ermakoff 2008, ch. 9, appendix A): Actors who provide statements with a narrative (diachronic) structure are likely to disclose much more pieces of information about themselves and others than they think.

**Observable implications.** If the evidence documenting the unfolding of a generative process in time is lacking, an alternative validation strategy consists in confronting observed and predicted outcomes (Geddes 2003, p. 39). For instance, Przeworski & Sprague (1986) gauge whether, in the course of the twentieth century, leftist parties' decision to appeal to nonworkers decreased their attractiveness within the working class, by constructing and assessing a trade-off index based on voting results over several decades. Focusing on the process whereby administrators adopt a governance model in a colonial setting, Wilson (2011, pp. 1458–68) probes alternative accounts of this process in light of their empirical implications regarding the comparative efficiency of two contrasted systems of tax collection in early colonial India. When different generative mechanisms are conceivable given contextual conditions, the focus should be on the “implicative core” of each in order to minimize their overlap in terms of observable implications (Caporaso 1995, p. 458; Geddes 2003, pp. 39–40).

**Agent-based simulation.** Although multiagent modeling remains underdeveloped as a method for exploring historically situated processes of change, its microanalytical underpinnings are fully in line with the specification requirements of a genetic mode of causal inquiry (Cederman 2005; Manzo 2015, pp. 29–34). This strategy of empirical assessment therefore holds great promises for genetic inquiries of historical objects. Reproducing the dynamics of generative process by simulating actions and interactions among individual actors has three potential benefits. First, as we operationalize analytical claims about the microunderpinnings of actions and reactions into a set of program commands, we probe further the precision and specificity of these claims. An ambiguous claim—i.e., a claim bundling up two or more possible interpretation regarding micro specifications—cannot be properly simulated. Second, simulation exercises make it possible to contrast simulated and observed outcomes (Hedström et al. 2000). Third, simulation exercises inform us on the extent to which changes in initial conditions and parameter values affect outcomes (e.g., Bhavnani 2006, p. 664).

## CODA

Mapping morphological, variable-centered, and genetic approaches to causal inquiry in historical social sciences brings into relief several observations. First, analysts interested in honing the analytics of their causal claims and in sounding the empirics of their case have much to gain from a

serious engagement with history. Historical complexity pulls analysts out of their comfort zone. It compels them to reflect critically on the empirical content of their variables, on the claims they set forth about the effectuation of change, and on the operational choices they make as they implement a formal description of their data.

Second, and related, a close focus on the practices of causal investigation moves us away from dichotomies such as qualitative versus quantitative, cases versus variables, structure versus agency, induction versus deduction, or even ideographic versus nomological. Studies that seek to strengthen their case by exposing themselves to critical scrutiny and refutation often pursue not one but several modes of causal investigation. Some inquiries cast their hypotheses in morphological or process-theoretic terms before resorting to a variable-centered framework to probe the empirical relevance of these claims (Kaufman 1999, Kiser & Linton 2002, McAdam & Su 2002, McVeigh et al. 2014, Olzak 1992). Others draw on a morphological or variable-centered analysis before reconsidering their case from a genetic standpoint (Beissinger 2002, Fishman & Lizardo 2013, Franzosi 1995, Voss 1993). Still others resort to morphological observations to test hypotheses about correlates (Gould 2000) or generative processes (Mitschele 2014).

The problem, and this is the third observation, lies with invocations of causality that reify the notion of cause and make it seem that from the moment we label a factor causal, we have in hand a sound explanation or an explanation that has empirical meaning. Statements that adopt the language of causality and elide the challenges posed by validation and refutation requirements amount to a scholastic exercise. The paradox here is that as we confront our causal claims with the hard stuff of historical evidence, that is, as we expose our claims to refutation, we also increase the likelihood that they might contribute to cumulative knowledge. The closer we get to history, the more Popperian our causal world becomes.

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## LITERATURE CITED

- Abbott A. 2001. *Time Matters: On Theory and Method*. Chicago: Univ. Chicago Press
- Abbott A, Hrycak A. 1990. Measuring resemblance in sequence data: an optimal matching analysis of musicians' careers. *Am. J. Sociol.* 96(1):144–85
- Abbott A, Tsay A. 2000. Sequence analysis and optimal matching methods in sociology: review and prospect. *Sociol. Methods Res.* 29(1):3–33
- Abell P. 1987. *The Syntax of Social Life: The Theory and Method of Comparative Narratives*. Oxford, UK: Clarendon
- Accominotti F, Khan SR, Storer A. 2018. How cultural capital emerged in Gilded Age America: musical purification and cross-class inclusion at the New York Philharmonic. *Am. J. Sociol.* 123(6):1743–83
- Adams J. 2005. *The Familial State: Ruling Families and Merchant Capitalism in Early Modern Europe*. Ithaca, NY: Cornell Univ. Press
- Adut A. 2005. A theory of scandal: Victorians, homosexuality, and the fall of Oscar Wilde. *Am. J. Sociol.* 111(1):213–48

- Amenta E, Caren N, Olasky SJ. 2005. Age for leisure? Political mediation and the impact of the pension movement on U.S. old-age policy. *Am. Sociol. Rev.* 70:516–38
- Amenta E, Poulsen JD. 1994. Where to begin: a survey of five approaches to selecting independent variables for qualitative comparative analysis. *Sociol. Methods Res.* 23(1):22–53
- Anderson E. 2013. Ideas in action: the politics of Prussian child labor reform, 1817–1839. *Theory Soc.* 42(1):81–119
- Andreas J. 2009. *Rise of the Red Engineers: The Cultural Revolution and the Origins of China's New Class*. Stanford, CA: Stanford Univ. Press
- Andrews KT. 2004. *Freedom Is a Constant Struggle: The Mississippi Civil Rights Movement and Its Legacy*. Chicago: Univ. Chicago Press
- Andrews KT, Biggs M. 2006. The dynamics of protest diffusion: movement organizations, social networks, and news media in the 1960 sit-ins. *Am. Sociol. Rev.* 71(5):752–77
- Ansell CK. 2001. *Schism and Solidarity in Social Movements: The Politics of Labor in the French Third Republic*. Cambridge, UK: Cambridge Univ. Press
- Babb S. 1996. “A true American system of finance”: frame resonance in the U.S. labor movement, 1866 to 1886. *Am. Sociol. Rev.* 61(6):1033–52
- Balian H, Bearman P. 2018. Pathways to violence: dynamics for the continuation of large-scale conflict. *Sociol. Theory* 36(2):210–20
- Baller R, Richardson K. 2002. Social integration, imitation, and the geographic patterning of suicide. *Am. Sociol. Rev.* 67(6):873–88
- Banerjee A, Iyer L. 2005. History, institutions, and economic performance: the legacy of colonial land tenure systems in India. *Am. Econ. Rev.* 95(4):1190–213
- Bargheer S. 2018. *Moral Entanglements: Conserving Birds in Britain and Germany*. Chicago: Univ. Chicago Press
- Barkey K. 2008. *Empire of Difference: The Ottoman in Comparative Perspective*. Cambridge, UK: Cambridge Univ. Press
- Barkey K, Van Rossem R. 1997. Networks of contention: villages and regional structure in the seventeenth-century Ottoman Empire. *Am. J. Sociol.* 102(5):1345–82
- Bates RH, Greif A, Levi M, Rosenthal JL, Weingast BR. 1998. *Analytic Narratives*. Princeton, NJ: Princeton Univ. Press
- Bearman P. 1993. *Relations into Rhetorics: Local Elite Social Structure in Norfolk, England, 1540–1640*. New Brunswick, NJ: Rutgers Univ. Press
- Bearman P, Faris R, Moody J. 1999. Blocking the future. *Soc. Sci. Hist.* 23(4):501–33
- Beck C. 2014. Reflections on the revolutionary wave in 2011. *Theory Soc.* 43(2):197–223
- Beissinger M. 2002. *Nationalist Mobilization and the Collapse of the Soviet State*. Cambridge, UK: Cambridge Univ. Press
- Bensel RF. 2008. *Passion and Preferences: William Jennings Bryan and the 1896 Democratic National Convention*. Cambridge, UK: Cambridge Univ. Press
- Bhavnani R. 2006. Ethnic norms and interethnic violence: accounting for mass participation in the Rwandan genocide. *J. Peace Res.* 43(6):651–69
- Biernacki R. 1995. *The Fabrication of Labor: Germany and Britain, 1640–1914*. Berkeley: Univ. Calif. Press
- Biggs M. 2005. Strikes as forest fires: Chicago and Paris in the late nineteenth century. *Am. J. Sociol.* 110(6):1684–714
- Bison I. 2010. Lexicographic index: a new measurement of resemblance among sequences. In *The Sage Handbook of Innovation in Social Science Research Methods*, ed. M Williams, WP Vogt, pp. 422–41. Los Angeles/London: Sage
- Blair-Loy M. 1999. Career patterns of executive women in finance: an optimal matching analysis. *Am. J. Sociol.* 104(5):1346–97
- Bloome D. 2014. Racial inequality trends and the intergenerational persistence of income and family structure. *Am. Sociol. Rev.* 79(6):1196–225
- Boix C. 2010. Electoral markets, party strategies, and proportional representation. *Am. Political Sci. Rev.* 104(2):404–13
- Bourdieu P. 1988. *Homo Academicus*. Stanford, CA: Stanford Univ. Press

- Braithwaite A, Braithwaite J, Kucik J. 2015. The conditioning effect of protest history on the emulation of nonviolent conflict. *J. Peace Res.* 52(6):697–711
- Braun R. 2016. Religious minorities and resistance to genocide: the collective rescue of Jews in the Netherlands during the Holocaust. *Am. Political Sci. Rev.* 110(1):127–47
- Breen R. 2000. Class inequality and social mobility in Northern Ireland, 1973 to 1996. *Am. Sociol. Rev.* 65(3):392–406
- Brown C. 2000. The role of employers in split labor markets: an event-structure analysis of racial conflict and AFL organizing, 1917–1919. *Soc. Forces* 79(2):653–81
- Brown C, Boswell T. 1995. Strikebreaking or solidarity in the Great Steel Strike of 1919: a split labor market, game-theoretic, and QCA analysis. *Am. J. Sociol.* 100(6):1479–519
- Brubaker R. 1992. *Citizenship and Nationhood in France and Germany*. Cambridge, MA: Harvard Univ. Press
- Brundage WF. 1993. *Lynching in the New South: Georgia and Virginia, 1880–1930*. Chicago: Univ. Ill. Press
- Capoccia G. 2005. *Defending Democracy: Reactions to Extremism in Interwar Europe*. Baltimore, MD: John Hopkins Univ. Press
- Caporaso J. 1995. Research design, falsification, and the qualitative-quantitative divide. *Am. Political Sci. Rev.* 89(2):457–60
- Caren N, Panofsky A. 2005. TQCA: a technique for adding temporality to qualitative comparative analysis. *Sociol. Methods Res.* 34(2):147–72
- Carroll GR, Hannan MT. 2000. *The Demography of Corporations and Industries*. Princeton, NJ: Princeton Univ. Press
- Carruthers BG. 1996. *City of Capital: Politics and Markets in the English Financial Revolution*. Princeton, NJ: Princeton Univ. Press
- Cartwright N. 2007. *Hunting Causes and Using Them: Approaches in Philosophy and Economics*. Cambridge, UK: Cambridge Univ. Press
- Cederman L. 2005. Computational models of social forms: advancing generative process theory. *Am. J. Sociol.* 110(4):864–93
- Charrad M. 2001. *States and Women's Rights: The Making of Postcolonial Tunisia, Algeria and Morocco*. Berkeley: Univ. Calif. Press
- Chen AS. 2009. *The Fifth Freedom: Jobs, Politics, and Civil Rights in the United States, 1941–1972*. Princeton, NJ: Princeton Univ. Press
- Chibber V. 2003. *Locked in Place: State-Building and Late Industrialization in India*. Princeton, NJ: Princeton Univ. Press
- Chong D. 1991. *Collective Action and the Civil Rights Movement*. Chicago: Univ. Chicago Press
- Clark S. 2016. *Distributing Status: The Evolution of State Honours in Western Europe*. Montreal: McGill Univ. Press
- Clemens E. 1997. *The People's Lobby: Organizational Innovation and the Rise of Interest Group Politics in the United States, 1890–1925*. Chicago: Univ. Chicago Press
- Collier D. 2014. Comment: QCA should set aside the algorithms. *Sociol. Methodol.* 44(1):122–26
- Cusack T, Iversen T, Soskice D. 2010. Coevolution of capitalism and political representation: the choice of electoral systems. *Am. Political Sci. Rev.* 104(2):393–403
- Davenport C, Soule S, Armstrong D. 2011. Protesting while black? The differential policing of American activism, 1960 to 1990. *Am. Sociol. Rev.* 76(1):152–78
- de Leon C. 2015. *The Origins of Right to Work: Antilabor Democracy in Nineteenth-Century Chicago*. Ithaca, NY: Cornell Univ. Press
- Dell M. 2010. The persistent effects of Peru's mining *mita*. *Econometrica* 78(6):1863–903
- DellaVigna S. 2009. Psychology and economics: evidence from the field. *J. Econ. Lit.* 47(2):315–72
- Deng Z, Treiman DJ. 1997. The impact of the cultural revolution on trends in educational attainment in the People's Republic of China. *Am. J. Sociol.* 103(2):391–428
- Desai M. 2002. The relative autonomy of party practices: a counterfactual analysis of left party ascendancy in Kerala, India, 1934–1940. *Am. J. Sociol.* 108(3):616–7
- Dixon M. 2008. Movements, countermovements and policy adoption: the case of right-to-work activism. *Soc. Forces* 87(1):473–500



- Dobbin F. 1994. *Forging Industrial Policy: The United States, Britain, and France in the Railway Age*. Cambridge, UK: Cambridge Univ. Press
- Dobbin F, Sutton J. 1998. The strength of a weak state: the rights revolution and the rise of human resources management divisions. *Am. J. Sociol.* 104(2):441–76
- Earl J, Soule S, McCarthy J. 2003. Protest under fire? Explaining the policing of protest. *Am. Sociol. Rev.* 68(4):581–606
- Ebbinghaus B, Visser J. 1999. When institutions matter: union growth and decline in western Europe, 1950–1995. *Eur. Sociol. Rev.* 15(2):135–58
- Eidlin B. 2016. Why is there no labor party in the United States? Political articulation and the Canadian comparison, 1932 to 1948. *Am. Sociol. Rev.* 81(3):488–516
- Ellingson S. 1995. Understanding the dialectic of discourse and collective action: public debate and rioting in Antebellum Cincinnati. *Am. J. Sociol.* 101(1):100–44
- Elster J. 1998. A plea for mechanisms. In *Social Mechanisms: An Analytical Approach to Social Theory*, ed. P Hedström, R Swedberg, pp. 45–73. Cambridge, UK: Cambridge Univ. Press
- Emigh RJ. 2009. *The Undevelopment of Capitalism: Sectors and Markets in Fifteenth-Century Tuscany*. Philadelphia: Temple Univ. Press
- Erikson E. 2014. *Between Monopoly and Free Trade: The English East India Company, 1600–1757*. Princeton, NJ: Princeton Univ. Press
- Erikson E, Bearman P. 2006. Malfeasance and the foundations for global trade: the structure of English trade in the East Indies, 1601–1833. *Am. J. Sociol.* 112(1):195–230
- Ermakoff I. 1997. Prelates and princes: aristocratic marriages, Canon Law prohibitions and shifts in norms and patterns of domination in the Central Middle Ages. *Am. Sociol. Rev.* 62:405–22
- Ermakoff I. 2008. *Ruling Oneself Out: A Theory of Collective Abdications*. Durham, NC: Duke Univ. Press
- Ermakoff I. 2015. The structure of contingency. *Am. J. Sociol.* 121(1):64–125
- Ertman T. 1997. *Birth of the Leviathan: Building States and Regimes in Medieval and Early Modern Europe*. Cambridge, UK: Cambridge Univ. Press
- Fairbrother M. 2014. Economists, capitalists, and the making of globalization: North American free trade in comparative-historical perspective. *Am. J. Sociol.* 119:1324–79
- Fishman R, Lizardo O. 2013. How macro-historical change shapes cultural taste: legacies of democratization in Spain and Portugal. *Am. Sociol. Rev.* 78(2):213–39
- Fiss PC, Marx A, Rihoux B. 2014. Comment: getting QCA right. *Sociol. Methodol.* 44(1):95–100
- Fligstein N. 1990. *The Transformation of Corporate Control*. Cambridge, MA: Harvard Univ. Press
- Foran J. 2005. *Taking Power: On the Origins of Third World Revolutions*. Cambridge, UK: Cambridge Univ. Press
- Fourcade M. 2009. *Economists and Societies: Discipline and Profession in the United States, Britain, and France, 1890s to 1990s*. Princeton, NJ: Princeton Univ. Press
- Fourcade M. 2011. Cents and sensibility: economic valuation and the nature of “nature.” *Am. J. Sociol.* 116(6):1721–77
- Fox C. 2010. Three worlds of relief: race, immigration, and public and private social welfare spending in American cities, 1929. *Am. J. Sociol.* 116(2):453–502
- Franzosi RP. 1995. *The Puzzle of Strikes: Class and State Strategies in Postwar Italy*. Cambridge, UK: Cambridge Univ. Press
- Franzosi RP. 2010a. *Quantitative Narrative Analysis*. Los Angeles/London: Sage
- Franzosi RP. 2010b. Sociology, narrative, and the quality versus quantity debate (Goethe versus Newton): Can computer-assisted story grammars help us understand the rise of Italian fascism (1919–1922)? *Theory Soc.* 39(6):593–629
- Freeland R. 2001. *The Struggle for Control of the Modern Corporation: Organizational Change at General Motors, 1924–1970*. Cambridge, UK: Cambridge Univ. Press
- Fujimura JH. 1996. Standardizing practices: a socio-history of experimental systems in classical genetic and virological cancer research, ca. 1920–1978. *Hist. Philos. Life Sci.* 18(1):3–54
- Gandhi J. 2008. *Political Institutions Under Dictatorship*. Cambridge, UK: Cambridge Univ. Press
- Gangl M. 2010. Causal inference in sociological research. *Annu. Rev. Sociol.* 36:21–47



- Geddes B. 2003. *Paradigms and Sand Castles: Theory Building and Research Design in Comparative Politics*. Ann Arbor: Univ. Mich. Press
- George AL, Bennett A. 2005. *Case Studies and Theory Development in the Social Sciences*. Cambridge, MA: MIT Press
- Gerring J. 2007. *Case Study Research: Principles and Practices*. Cambridge, UK: Cambridge Univ. Press
- Gerteis J. 2007. *Class and the Color Line: Interracial Class Coalition in the Knights of Labor and the Populist Movement*. Durham, NC: Duke Univ. Press
- Geva D. 2015. Selective service, the gender-ordered family, and the rational informality of the American state. *Am. J. Sociol.* 121(1):171–204
- Giuffre K. 1999. Sandpiles of opportunity: success in the art world. *Soc. Forces* 77(3):815–32
- Glaeser A. 2011. *Political Epistemics: The Secret Police, the Opposition and the End of East German Socialism*. Chicago: Univ. Chicago Press
- Go J. 2008. *American Empire and the Politics of Meaning: Elite Political Cultures in the Philippines and Puerto Rico During U.S. Colonialism*. Durham, NC: Duke Univ. Press
- Göçek FM. 2015. *Denial of Violence: Ottoman Past, Turkish Present, and Collective Violence against the Armenians, 1789–2009*. Oxford, UK: Oxford Univ. Press
- Goldberg CA. 2007. *Citizens and Paupers: Relief, Rights, and Race, from the Freedmen's Bureau to Welfare*. Chicago: Univ. Chicago Press
- Golden M. 1997. *Heroic Defeats: The Politics of Job Loss*. Cambridge, UK: Cambridge Univ. Press
- Goldstein A, Haveman H. 2013. Pulpit and press: denominational dynamics and the growth of religious magazines in Antebellum America. *Am. Sociol. Rev.* 78(5):797–827
- Goldthorpe JH. 2007. *On Sociology, Vol. 1: Critique and Program*. Oxford, UK: Oxford Univ. Press. 2nd ed.
- Goodwin J. 2001. *No Other Way Out: States and Revolutionary Movements, 1945–1991*. Cambridge, UK: Cambridge Univ. Press
- Gorski PS. 2003. *The Disciplinary Revolution: Calvinism and the Rise of the State in Early Modern Europe*. Chicago: Univ. Chicago Press
- Gould RV. 1991. Multiple networks and mobilization in the Paris Commune, 1871. *Am. Sociol. Rev.* 56(6):716–29
- Gould RV. 1996. Patron-client ties, state centralization, and the Whiskey Rebellion. *Am. J. Sociol.* 102(2):400–29
- Gould RV. 2000. Revenge as sanction and solidarity display: an analysis of vendettas in nineteenth-century Corsica. *Am. Sociol. Rev.* 65(5):682–704
- Greif A. 2006. *Institutions and the Path to the Modern Economy: Lessons from Medieval Trade*. Cambridge, UK: Cambridge Univ. Press
- Griffin LJ. 1993. Narrative, event-structure analysis, and causal interpretation in historical sociology. *Am. J. Sociol.* 98(5):1094–133
- Griffin LJ, Isaac LW. 1992. Recursive regression and the historical use of “time” in time-series analysis of historical process. *Hist. Methods* 25(4):166–79
- Griffin LJ, Ragin CC. 1994. Some observations on formal methods of qualitative analysis. *Sociol. Methods Res.* 23(1):4–21
- Grigoryeva A, Ruef M. 2015. The historical demography of racial segregation. *Am. Sociol. Rev.* 80(4):814–42
- Hagen R, Makovi K, Bearman P. 2013. The influence of political dynamics on Southern lynch mob formation and lethality. *Soc. Forces* 92(2):757–87
- Hall J. 1999. *Cultures of Inquiry: From Epistemology to Discourse in Sociobistorical Research*. Cambridge, UK: Cambridge Univ. Press
- Harré R, Secord PF. 1973. *The Explanation of Social Behavior*. Totowa, NJ: Littlefield
- Haydu J. 2008. *Citizen Employers: Business Communities and Labor in Cincinnati and San Francisco, 1870–1916*. Ithaca, NY: Cornell Univ. Press
- Hechter M, Pfaff S, Underwood P. 2016. Grievances and the genesis of rebellion: mutiny in the Royal Navy, 1740 to 1820. *Am. Sociol. Rev.* 81(1):165–89
- Hedström P. 1994. Contagious collectivities: on the spatial diffusion of Swedish trade unions, 1890–1940. *Am. J. Sociol.* 99(5):1157–79

- Hedström P, Sandell R, Stern C. 2000. Mesolevel networks and the diffusion of social movements: the case of the Swedish Social Democratic Party. *Am. J. Sociol.* 106(1):145–72
- Hedström P, Swedberg R. 1998. Social mechanisms: an introductory essay. In *Social Mechanisms: An Analytical Approach to Social Theory*, ed. P Hedström, R Swedberg, pp. 1–31. Cambridge, UK: Cambridge Univ. Press
- Hillmann H. 2008a. Localism and the limits of political brokerage: evidence from Revolutionary Vermont. *Am. J. Sociol.* 114(2):287–331
- Hillmann H. 2008b. Mediation in multiple networks: elite mobilization before the English Civil War. *Am. Sociol. Rev.* 73(3):426–54
- Hillmann H, Aven BL. 2011. Fragmented networks and entrepreneurship in late imperial Russia. *Am. J. Sociol.* 117(2):484–538
- Holland P. 1986. Statistics and causal inference. *J. Am. Stat. Assoc.* 81(396):945–60
- Hug S. 2003. Selection bias in comparative research: the case of incomplete data sets. *Political Anal.* 11(3):255–74
- Hug S. 2013. Qualitative comparative analysis: how inductive use and measurement error lead to problematic inference. *Political Anal.* 21(2):252–65
- Hung H. 2011. *Protest with Chinese Characteristics: Demonstrations, Riots, and Petitions in the Mid-Qing Dynasty*. New York: Columbia Univ. Press
- Isaac LW, McDonald S, Lukasik G. 2006. ‘Takin’ it from the streets: how the sixties mass movement revitalized unionization. *Am. J. Sociol.* 112(1):46–96
- Isaac LW, Street DA, Knapp SJ. 1994. Analyzing historical contingency with formal methods: the case of the “relief explosion” and 1968. *Sociol. Methods Res.* 23(1):114–41
- Jacobs AM. 2015. Process tracing the effects of ideas. In *Process Tracing: From Metaphor to Analytic Tool*, ed. A Bennett, JT Checkel, pp. 41–73. Cambridge, UK: Cambridge Univ. Press
- Jansen RS. 2017. *Revolutionizing Repertoires: The Rise of Populist Mobilization in Peru*. Chicago: Univ. Chicago Press
- Johnson V. 2007. What is organizational imprinting? Cultural entrepreneurship in the founding of the Paris Opera. *Am. J. Sociol.* 113(1):97–127
- Kalyvas S. 2006. *The Logic of Violence in Civil War*. Cambridge, UK: Cambridge Univ. Press
- Kaufman J. 1999. Three views of associationalism in 19th-century America: an empirical examination. *Am. J. Sociol.* 104(5):1296–345
- Kim H, Pfaff S. 2012. Structure and dynamics of religious insurgency: students and the spread of the Reformation. *Am. Sociol. Rev.* 77(2):188–215
- Kimeldorf H. 1999. *Battling for American Labor: Wobblies, Craft Workers, and the Making of the Union Movement*. Berkeley: Univ. Calif. Press
- King G, Keohane RO, Verba S. 1994. *Designing Social Inquiry: Scientific Inference in Qualitative Research*. Princeton, NJ: Princeton Univ. Press
- Kiser E, Linton A. 2002. The hinges of history: state-making and revolt in early modern France. *Am. Sociol. Rev.* 67(6):889–910
- Koçak Ö, Carroll G. 2008. Growing church organizations in diverse U.S. communities, 1890–1926. *Am. J. Sociol.* 113(5):1272–315
- Kreuzer M. 2010. Historical knowledge and quantitative analysis: the case of the origins of proportional representation. *Am. Political Sci. Rev.* 104(2):369–92
- Krippner GR. 2011. *Capitalizing on Crisis: The Political Origins of the Rise of Finance*. Cambridge, MA: Harvard Univ. Press
- Kuran T. 1991. Now out of never: the element of surprise in the East European Revolution of 1989. *World Politics* 44:7–48
- Kurzban C. 2004. *The Unthinkable Revolution in Iran*. Cambridge, MA: Harvard Univ. Press
- Kurzban C. 2008. *Democracy Denied, 1905–1915: Intellectuals and the Fate of Democracy*. Cambridge, MA: Harvard Univ. Press
- Lachmann R. 2002. *Capitalists in Spite of Themselves: Elite Conflict and European Transitions in Early Modern Europe*. Oxford, UK: Oxford Univ. Press

- Lange M. 2009. *Lineages of Despotism and Development: British Colonialism and State Power*. Ithaca, NY: Cornell Univ. Press
- Liebertson S. 1994. More on the uneasy case for using Mill-type methods in small-*N* comparative studies. *Soc. Forces* 72(4):1225–37. Erratum. 1995. *Soc. Forces* 73(4):1654
- Liebertson S. 2004. Comments on the use and utility of QCA. *Qual. Methods* 2(2):13–14
- Lin K, Tomaskovic-Devey D. 2013. Financialization and U.S. income inequality, 1970–2008. *Am. J. Sociol.* 118(5):1284–329
- Lindenberg S. 1977. Individuelle Effekte, kollektive Phänomene und das Problem der Transformation. In *Probleme der Erklärung sozialen Verhaltens*, ed. K Eichner, W Habermehl, pp. 46–84. Meisenheim, Ger.: Hain
- Little D. 1991. *Varieties of Social Explanation: An Introduction to the Philosophy of Social Science*. Boulder, CO: Westview
- Lohmann S. 1994. The dynamics of informational cascades: the Monday demonstrations in Leipzig, East Germany, 1989–91. *World Politics* 47:42–101
- Loveman M. 2005. The modern state and the primitive accumulation of symbolic power. *Am. J. Sociol.* 110(6):1651–83
- Loveman M. 2014. *National Colors: Racial Classification and the State in Latin America*. Oxford, UK: Oxford Univ. Press
- Loveman M, Muniz JO. 2007. How Puerto Rico became white: boundary dynamics and intercensus racial reclassification. *Am. Sociol. Rev.* 72(6):915–39
- Lucas SR. 2014. Rejoinder: taking heat and giving light—reflections on the early reception of “Qualitative Comparative Analysis in Critical Perspective.” *Sociol. Methodol.* 44(1):127–58
- Lucas SR, Szatrowski A. 2014. Qualitative comparative analysis in critical perspective. *Sociol. Methodol.* 44(1):1–79
- Luong PJ. 2002. *Institutional Change and Political Continuity in Post-Soviet Central Asia: Power, Perceptions, and Pacts*. Cambridge, UK: Cambridge Univ. Press
- Lustick I. 1996. History, historiography, and political science: multiple historical records and the problem of selection bias. *Am. Political Sci. Rev.* 90(3):605–18
- MacKenzie D, Millo Y. 2003. Constructing a market, performing theory: the historical sociology of a financial derivatives exchange. *Am. J. Sociol.* 109(1):107–45
- Maggetti M, Levi-Faur D. 2013. Dealing with errors in QCA. *Political Res. Q.* 66(1):198–204
- Mahoney J. 2000. Path dependence in historical sociology. *Theory Soc.* 29(4):507–48
- Mahoney J, Goertz G. 2004. The possibility principle: choosing negative cases in comparative research. *Am. Political Sci. Rev.* 98(4):653–69
- Manzo G. 2015. Data, generative models, and mechanisms: more on the principles of analytical sociology. In *Analytical Sociology: Actions and Networks*, ed. G Manzo, pp. 4–52. Chichester, UK: Wiley
- Markoff J. 1996. *The Abolition of Feudalism: Peasants, Lords, and Legislators in the French Revolution*. University Park: Pa. State Univ. Press
- McAdam D, Su Y. 2002. The war at home: antiwar protests and congressional voting, 1965 to 1973. *Am. Sociol. Rev.* 67(5):696–721
- McCammon H, Chaudhuri S, Hewitt L, Muse C, Newman H, et al. 2008. Becoming full citizens: the U.S. women’s jury rights campaigns, the pace of reform, and strategic adaptation. *Am. J. Sociol.* 113(4):1104–47
- McLean PD. 2007. *The Art of the Network: Strategic Interaction and Patronage in Renaissance Florence*. Durham, NC: Duke Univ. Press
- McVeigh R, Cunningham D, Farrell J. 2014. Political polarization as a social movement outcome: 1960s Klan activism and its enduring impact on political realignment in southern counties, 1960 to 2000. *Am. Sociol. Rev.* 79(6):1144–71
- Minkoff D. 1999. Bending with the wind: strategic change and adaptation by women’s and racial minority organizations. *Am. J. Sociol.* 104(6):1666–1703
- Mitschele A. 2014. Identity and opportunity in early modern politics: how job vacancies induced witch persecutions in Scotland, 1563–1736. In *Analytical Sociology: Actions and Networks*, ed. G Manzo, pp. 151–68. Chichester, UK: Wiley

- Møller J, Schmotz A, Skaaning S-E. 2015. Economic crisis and democratic breakdown in the interwar years: a reassessment. *Hist. Soc. Res.* 40:301–18
- Møller J, Skaaning SE. 2018. The Ulysses principle: a criterial framework for reducing bias when enlisting the work of historians. *Sociol. Methods Res.* <https://doi.org/10.1177/0049124118769107>
- Montgomery J. 2011. The population dynamics of Black-White-Mulatto racial systems. *Am. J. Sociol.* 117(1):46–89
- Monroe BL, Colaresi MP, Quinn KM. 2008. Fightin' words: lexical feature selection and evaluation for identifying the content of political conflict. *Political Anal.* 16(4):372–403
- Muller C. 2012. Northward migration and the rise of racial disparity in American incarceration, 1880–1950. *Am. J. Sociol.* 118(2):281–326
- Myers DJ. 2000. The diffusion of collective violence: infectiousness, susceptibility, and mass media networks. *Am. J. Sociol.* 106(1):173–208
- Myers D, Caniglia B. 2004. All the rioting that's fit to print: selection effects in national newspaper coverage of civil disorders, 1968–1969. *Am. Sociol. Rev.* 69(4):519–43
- Noymer A, Garenne M. 2000. The 1918 influenza epidemic's effects on sex differentials in mortality in the United States. *Popul. Dev. Rev.* 26(3):565–81
- Olzak S. 1992. *The Dynamics of Ethnic Competition and Conflict*. Stanford, CA: Stanford Univ. Press
- Opp KD, Gern C. 1993. Dissident groups, personal networks, and spontaneous cooperation: the East German revolution of 1989. *Am. Sociol. Rev.* 58:659–80
- Orloff AS, Skocpol T. 1984. Why not equal protection? Explaining the politics of public social spending in Britain, 1900–1911, and the United States, 1880s–1920. *Am. Sociol. Rev.* 49(6):726–50
- Owens P. 2014. The collective dynamics of genocidal violence in Cambodia, 1975–1979. *Soc. Sci. Hist.* 38(3–4):411–36
- Padgett J, Ansell C. 1993. Robust action and the rise of the Medici, 1400–1434. *Am. J. Sociol.* 98(6):1259–319
- Padgett JF, McLean PD. 2006. Organizational invention and elite transformation: the birth of partnership systems in Renaissance Florence. *Am. J. Sociol.* 111(5):1463–568
- Parigi P. 2012. *The Rationalization of Miracles*. Cambridge, UK: Cambridge Univ. Press
- Paschel TS. 2016. *Becoming Black Political Subjects: Movements and Etno-Racial Rights in Colombia and Brazil*. Princeton, NJ: Princeton Univ. Press
- Petersen RD. 2001. *Resistance and Rebellion: Lessons from Eastern Europe*. Cambridge, UK: Cambridge Univ. Press
- Petev I. 2013. The association of social class and lifestyles: persistence in American sociability, 1974 to 2010. *Am. Sociol. Rev.* 78(4):633–61
- Pfaff S. 2006. *Exit-Voice Dynamics and the Collapse of East Germany*. Durham, NC: Duke Univ. Press
- Pierson P. 2004. *Politics in Time: History, Institutions, and Social Analysis*. Princeton, NJ: Princeton Univ. Press
- Prasad M. 2006. *The Politics of Free Markets: The Rise of Neoliberal Economic Policies in Britain, France, Germany, and the United States*. Chicago: Univ. Chicago Press
- Prechel H, Morris T. 2010. The effects of organizational and political embeddedness on financial malfeasance in the largest U.S. corporations: dependence, incentives, and opportunities. *Am. Sociol. Rev.* 75(3):331–54
- Przeworski A, Alvarez ME, Cheibub JA, Limongi F. 2000. *Democracy and Development: Political Institutions and Well-Being in the World, 1950–1990*. Cambridge, UK: Cambridge Univ. Press
- Przeworski A, Limongi F. 1993. Political regimes and economic growth. *J. Econ. Perspect.* 7(3):51–69
- Przeworski A, Sprague J. 1986. *Paper Stones: A History of Electoral Socialism*. Chicago: Univ. Chicago Press
- Ragin CC. 2008. *Redesigning Social Inquiry: Fuzzy Sets and Beyond*. Chicago: Univ. Chicago Press
- Ragin CC. 2014 (1987). *The Comparative Method: Moving Beyond Qualitative and Quantitative Strategies*. Berkeley: Univ. Calif. Press
- Ragin CC. 2014. Comment: Lucas and Szatrowski in critical perspective. *Sociol. Methodol.* 44(1):80–94
- Raub W, Buskens V, van Assen MALM. 2011. Micro-macro links and microfoundations in sociology. *J. Math. Sociol.* 35:1–25
- Reinert M. 1998. Mondes lexicaux et topoi dans l'approche Alceste. In *Mots chiffrés et déchiffrés: Mélanges offerts à Étienne Brunet*, ed. S Mellet, M Vuillaume, pp. 289–303. Geneva: Slatkine

- Riley D. 2005. Civic associations and authoritarian regimes in interwar Europe: Italy and Spain in comparative perspective. *Am. Sociol. Rev.* 70 (2):288–310
- Rohwer G. 2011. Qualitative comparative analysis: a discussion of interpretations. *Eur. Sociol. Rev.* 27(6):728–40
- Rule A, Cointet JP, Bearman PS. 2015. Lexical shifts, substantive changes, and continuity in State of the Union discourse, 1790–2014. *PNAS* 112(35):10837–44
- Sandell R. 2001. Organizational growth and ecological constraints: the growth of social movements in Sweden, 1881 to 1940. *Am. Sociol. Rev.* 66(5):672–93
- Sapiro G. 2014. *The French Writers' War, 1940–1953*. Durham, NC: Duke Univ. Press
- Schneider CQ, Rohlfing I. 2016. Case studies nested in fuzzy-set QCA on sufficiency: formalizing case selection and causal inference. *Sociol. Methods Res.* 45(3):526–68
- Schofer E. 2003. The global institutionalization of geological science, 1800 to 1990. *Am. Sociol. Rev.* 68(5):730–59
- Schonhardt-Bailey C. 2006. *From the Corn Laws to Free Trade: Interests, Ideas, and Institutions in Historical Perspective*. Cambridge, MA: MIT Press
- Seawright J. 2014. Comment: limited diversity and the unreliability of QCA. *Sociol. Methodol.* 44(1):118–21
- Seidman GW. 1994. *Manufacturing Militance: Workers' Movements in Brazil and South Africa, 1970–1985*. Berkeley: Univ. Calif. Press
- Sewell WH Jr. 2005. *Logics of History: Social Theory and Social Transformation*. Chicago: Univ. Chicago Press
- Skocpol T. 1992. *Protecting Mothers and Soldiers: The Political Origins of Social Policy in the United States*. Cambridge, MA: Harvard Univ. Press
- Slater D. 2010. *Ordering Power: Contentious Politics and Authoritarian Leviathans in Southeast Asia*. Cambridge, UK: Cambridge Univ. Press
- Slez A, Martin JL. 2007. Political action and party formation in the United States Constitutional Convention. *Am. Sociol. Rev.* 72(1):42–67
- Smith C, Papachristos A. 2016. Trust thy crooked neighbor: multiplexity in Chicago organized crime networks. *Am. Sociol. Rev.* 81(4):644–67
- Sohrabi N. 2002. Global waves, local actors: what the young Turks knew about other revolutions and why it mattered. *Comp. Stud. Soc. Hist.* 44:45–79
- Sohrabi N. 2013. *Revolution and Constitutionalism in the Ottoman Empire and Iran*. Cambridge, UK: Cambridge Univ. Press
- Song X, Campbell C, Lee J. 2015. Ancestry matters: patrilineage growth and extinction. *Am. Sociol. Rev.* 80(3):574–602
- Somers M, Block F. 2005. From poverty to perversity: ideas, markets, and institutions over 200 years of welfare debate. *Am. Sociol. Rev.* 70(2):260–87
- Stasavage D. 2003. *Public Debt and the Birth of the Democratic State: France and Great Britain 1688–1789*. Cambridge, UK: Cambridge Univ. Press
- Steinmetz G. 1993. *Regulating the Social: The Welfare State and Social Politics in Imperial Germany*. Princeton, NJ: Princeton Univ. Press
- Steinmetz G. 2007. *The Devil's Handwriting: Precoloniality and the German Colonial State in Qingdao, Samoa, and Southwest Africa*. Chicago: Univ. Chicago Press
- Stepan-Norris J, Zeitlin M. 2002. *Left Out: Reds and America's Industrial Unions*. Cambridge, UK: Cambridge Univ. Press
- Stovel K. 2001. The structure of lynching in the Deep South, 1882–1930. *Soc. Forces* 79(3):843–80
- Stovel K, Savage M, Bearman P. 1996. Ascription into achievement: models of career systems at Lloyds Bank, 1890–1970. *Am. J. Sociol.* 102(2):358–99
- Straus S. 2006. *The Order of Genocide: Race, Power and War in Rwanda*. Ithaca, NY: Cornell Univ. Press
- Su Y. 2011. *Collective Killings in Rural China During the Cultural Revolution*. Cambridge, UK: Cambridge Univ. Press
- Svolik MW. 2012. *The Politics of Authoritarian Rule*. Cambridge, UK: Cambridge Univ. Press
- Swenson PA. 2002. *Capitalists against Markets: The Making of Labor Markets and Welfare States in the United States and Sweden*. Oxford, UK: Oxford Univ. Press



- Taylor M. 1988. Rationality and revolutionary collective action. In *Rationality and Revolution*, ed. M Taylor, pp. 63–97. Cambridge, UK: Cambridge Univ. Press
- Tolnay SE, Deane G, Beck E. 1996. Vicarious violence: spatial effects on southern lynchings, 1890–1919. *Am. J. Sociol.* 102(3):788–815
- Traugott M. 2002. *Armies of the Poor: Determinants of Working-Class Participation in the Parisian Insurrection of June 1848*. New Brunswick, NJ: Transaction
- Uzzi B, Spiro J. 2005. Collaboration and creativity: the small world problem. *Am. J. Sociol.* 111(2):447–504
- van Doosselaere Q. 2009. *Commercial Agreements and Social Dynamics in Medieval Genoa*. Cambridge, UK: Cambridge Univ. Press
- Vicari S. 2010. Measuring collective action frames: a linguistic approach to frame analysis. *Poetics* 38:504–25
- Voas D, Crockett A, Olson DVA. 2002. Religious pluralism and participation: why previous research is wrong. *Am. Sociol. Rev.* 67(2):212–30
- Voss K. 1993. *The Making of American Exceptionalism: The Knights of Labor and Class Formation in the Nineteenth Century*. Ithaca, NY: Cornell Univ. Press
- Walder AG. 2009. *Fractured Rebellion: The Beijing Red Guard Movement*. Cambridge, MA: Harvard Univ. Press
- Wang D, Soule S. 2012. Social movement organizational collaboration: networks of learning and the diffusion of protest tactics, 1960–1995. *Am. J. Sociol.* 117(6):1674–722
- Wawro G, Katznelson I. 2014. Designing historical social scientific inquiry: how parameter heterogeneity can bridge the methodological divide between quantitative and qualitative approaches. *Am. J. Political Sci.* 58(2):526–46
- Western B, Kleykamp M. 2004. A Bayesian change point model for historical time series analysis. *Political Anal.* 12(4):354–74
- Whitt H. 2010. The civilizing process and its discontents: suicide and crimes against persons in France, 1825–1830. *Am. J. Sociol.* 116(1):130–86
- Wilde M. 2007. *Vatican II: A Sociological Analysis of Religious Change*. Princeton, NJ: Princeton Univ. Press
- Wilde M, Danielsen S. 2014. Fewer and better children: race, class, religion, and birth control reform in America. *Am. J. Sociol.* 119(6):1710–60
- Wilson NH. 2011. From reflection to refraction: state administration in British India, circa 1770–1855. *Am. J. Sociol.* 116(5):1437–77
- Wimmer A. 2013. *Waves of War: Nationalism, State Formation, and Ethnic Exclusion in the Modern World*. Cambridge, UK: Cambridge Univ. Press
- Wimmer A, Min B. 2006. From empire to nation-state: explaining wars in the modern world, 1816–2001. *Am. Sociol. Rev.* 71(6):867–97
- Zubrzycki G. 2016. *Beheading the Saint: Nationalism, Religion, and Secularism in Quebec*. Chicago: Univ. Chicago Press