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The Structure of Comparison in the Study of Revolution

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Abstract

The social scientific study of revolution has been deviled by a lack of progress in recent years, divided between competing views on the universality of patterns in revolution. This study examines the origins of these epistemologies. Drawing on an insight that different modes of comparison yield different types of knowledge, I argue that the network structure of how cases are compared constrains or enables the development of a field's theoretical sensibilities. Analysis of comparative studies of revolution published from 1970 to 2009 reveals that the field overall is most amenable to knowledge about particular cases rather than the phenomenon of revolution broadly. Analysis of the changing structure of comparison over time reveals that comparison precedes the development of an epistemology. The results suggest that conclusions about the possibility, or lack thereof, of generalization may be an artifact of the comparative method.

Keywords

revolution, comparative methods, theory

With the sudden onset of the 2011 "Arab Spring" in the Middle East and North Africa, the phenomenon of revolution has new life in the social sciences. Recent accounts of the events stress various causal dimensions: weak states and divided elites (Goldstone 2013; Goodwin 2011; Mann 2013; Ritter 2015), processes of contagion and diffusion (Beck 2014; Diani 2011; Hale 2013), strengths of movements and coalitions (Austin Holmes 2012; Foran 2014; Lawson 2015; Leenders 2012), and the contingency of collective action (Kurzman 2012; Weyland 2012). Each explanation has its roots in years-old paradigms for understanding revolution. Scholars of revolution have known for decades that weak states and elite schisms can generate revolution (e.g., Goldstone 1991; Goodwin 2001; Skocpol 1979) and that contention can spread from one society to another (e.g., Katz 1997; Markoff 1996; Sohrabi 2002). Similarly, coalitions have long been a hallmark of revolution studies (Dix 1984; Foran 2005; Markoff 1988), and the importance of contingent processes for understanding revolution is over a decade old (Keddie 1995; Kuran 1995; Kurzman 1996). Theorization of revolution in general therefore appears to have slowed to a crawl (Lawson 2016).

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The lack of progress in revolution theory signals different things to different scholars. On the one hand, some researchers interpret it to mean that generalizable models of revolution should be created, either through the incorporation of new factors and causes (Beck 2014; Goldstone 1998, 2003; Halliday 1999; Lawson 2016) or the parsimony of necessary and sufficient causation (Goodwin 2001; Mann 2013). On the other hand, some take the lack of progress to be evidence of the failure of generalizable propositions and thus emphasize the inherent uniqueness of revolutionary events (Ermakoff 2015; Kurzman 2004; McAdam, Tarrow, and Tilly 2001).

The meta-theoretical stances of these two views on revolution extend beyond the results of any one study or the propositions of any one theory. Rather, they are epistemological and ontological positions. As in social science in general, each perspective affects which events are to be considered part of the phenomenon in question, what the purposes of research should be, and which type of theories can be developed (Reed 2011).

I draw on a classic insight from Skopcol and Somers (1980)—that different analytic stances necessitate different sorts of comparisons—to explore the origins of the contemporary epistemologies in revolution theory. I argue that the logic of Skocpol and Somers can be inverted. That is, different types of comparison are more or less likely to lend themselves to different types of knowledge and the development of different epistemologies. This argument is essentially about inductivism in social scientific research. In comparative methodology, cases are investigated and theories developed in an iterative fashion (George and Bennett 2005; Goertz and Mahoney 2012). As such, theories reflect cases as much as deductive first principles. Which cases have been investigated and which comparisons have been drawn therefore will structure the development of theory for the individual study. A parallel process occurs at the level of a comparative field. Here, the underlying patterns of multiple studies' comparisons will structure a field's epistemological stances. In short, comparison precedes epistemology.

To substantiate the argument, I use two analytic approaches. The first is to consider a knowledge system as a whole with a life of its own beyond the individual study. Conceptualizing knowledge this way is a classic approach in the sociology of science (Abbott 2001; Collins 2000; Kuhn 1962; Reed 2011), and it is distinct from approaches that consider the complex ways knowledge is made by scholars rooted in particular social sites (see Camic, Gross, and Lamont 2012; e.g., Bourdieu 2004; Latour 1987; Merton 1973). This way of thinking contrasts with the cottage industry of comparative-historical methodologists, which tends to focus on the lessons of singular noteworthy studies (e.g., Collier and Mahoney 1996; Geddes 1990; Mahoney 1999, 2000; Parigi and Henson n.d.). In contrast, the argument here is at the level of the field—an epistemology rather than a theory, a universe of cases rather than a singular case comparison.

Thinking of a field as a whole system leads to the second analytic approach. I conceptualize comparison as a network of cases, suited for the tools of social network analysis. In comparative studies, cases do not just exist as independent units—rather, they lie in interdependent webs of comparison. This conceptualization is commensurate with a relational sociological approach, which emphasizes the dynamics between social entities (see Emirbayer 1997). A comparison between cases sets a relation between them, and the appearance of a case in multiple publications links the studies together. With repeated and new comparisons across a universe of cases, a network of ties develops. The resulting structure of comparison undergirds an entire comparative field's theoretical development. The structure of this network, its cases, and their evolution over time reveal what type of knowledge about revolution can and should be expected to develop.

The argument here is thus one of macro-macro causation (see Jepperson and Meyer 2011). As such, I examine all identifiable comparative case studies of revolution published

in English between 1970 and 2009. The data are both novel and robust as they cover an entire field of comparative study in its modern incarnation. And the approach follows in the tradition of methodological reflection by comparative-historical sociologists (see e.g., Adams, Clemens, and Orloff 2005; Goertz and Mahoney 2012; Steinmetz 2004), of which revolution studies are no small part (Goldstone 2003).

The investigation yields a few key findings. First, the field of revolution has a clear preference for particular types of cases. Surprisingly, however, these are not the great revolutions of old but modern events, particularly those with leftist bases or insurgent modes of contention. The Nicaraguan Revolution of 1979, for example, is the most studied case. Second, comparison displays great homophily. Cases that are similar to each other are the most likely to be compared, and clusters of compared cases tend to fall within spatial and temporal boundaries. Third, analysis of change in the field over time confirms that the structure of comparison precedes the development of a meta-theoretical position, and it suggests increasing fragmentation in revolution studies in the past decade. Altogether, the results indicate that the study of revolution is not well positioned to adjudicate between competing epistemologies. The possibility, or lack thereof, of generalizability remains an open question.

EPISTEMOLOGIES OF REVOLUTION AND THE STRUCTURE OF COMPARISON

Since the origins of social science, the study of revolution has undergone four primary generations of scholarship (Goldstone 1982, 2001). The earliest generations included the natural histories of revolution (e.g., Brinton 1938; Edwards 1927; Pettee 1938) and the general approaches of social strain theory (e.g., Davies 1962; Gurr 1970; Huntington 1968; Smelser 1962). By the 1970s, the beginning of the time period under investigation here, an early third-generation structuralist, sometimes Marxist, account of revolution emerged (e.g., Moore 1966; Paige 1975; Snyder and Tilly 1972; Tilly 1964; Wolf 1969). In 1979, Theda Skocpol published *States and Social Revolutions*, which ushered in a new paradigm for understanding revolution—state breakdown theory. Skocpol's parsimonious definition of what constitutes a "social revolution" animated scholarship and gave it a clear object of focus. State-centered theories of revolution thus dominated the field for over a decade (e.g., Goldstone 1991; Goodwin 2001) and constituted the highpoint of the third generation of revolution theory.

However, discontent with a state-centered view grew, particularly in its most abstract formulations. Scholars turned toward theories that explored challengers' capacity to mobilize and the role of contingency and historical accident (e.g., Foran and Goodwin 1993; Kuran 1995; Kurzman 1996; Parsa 2000; Reed and Foran 2002; Selbin 1993; Weyland 2009). This work, while accompanying the cultural and agentic turn in social science, was also influenced by a new way of thinking about causality. Tilly (1995, 2001) proposed that social science should reject abstract generalizations in favor of mechanisms that could combine and recombine in different fashions in different cases. As the view developed, so did the types of mobilization considered analyzable as revolutions—failed mobilizations and negative cases (Foran 2005; Goodwin 2001; Tilly 1993), electoral and pacted transitions (Lawson 2005), and nonviolent mass protest (Beissinger 2013; Nepstad 2011; Ritter 2015; Stephan and Chenoweth 2008; Zunes 1994). These post–state breakdown theories constitute what is known as the fourth generation of revolution theory (Foran 1993; Goldstone 2001; Lawson 2016).

The third and fourth generations of revolution theory were each accompanied by a broader epistemology. As with any epistemology, there was a sense of what a revolution is and what

the purposes of investigation should be. Certainly, specific theories diverged from the general framework of the generation, but the overall thrust was clear. This is what makes them generations, after all (Clemens 2007; Goldstone 1982). The primary dividing line between the most recent generations is whether or not there are universal causes of revolution. Third-generation structuralists sought generalizability across time and space, whereas fourth-generation scholars emphasized the inherent uniqueness of events, often due to agency and contingency. This debate remains unresolved today (Lawson 2016). Thus, both epistemologies persist as the Arab Spring is considered: universalists (e.g., Mann 2013; Ritter 2015) and particularists (e.g., Ermakoff 2015; Kurzman 2012).

I prefer not to refer to the epistemic divide as one of generalizability. First, *generalizability* is a loaded word in comparative social science, and second, it is usually thought of as a property of a specific theoretical proposition. More fitting terms, when thinking about the overall theoretical style of a generation, may be Parigi and Henson's (N.d.) *portable* and *grounded* knowledge. Portable knowledge is applicable to instances beyond the cases of its initial development. Grounded knowledge remains much closer to its cases and sets tighter bounds on its applicability elsewhere. These are ideal-types. Any given study may display some degree of portability and groundedness in its analysis. And other words could be used, such as *universal* or *particular, general* or *specific*. Yet at the level of the field as a whole, I find the terminology of *portable* and *grounded* fitting to describe broad sensibilities. That is, they provide a way to characterize an epistemology without drawing claims about the specific nature of its individual theoretical propositions. I thus use *portability* and *groundedness* to characterize the generations of revolution theory without making claims about the nature of individual studies within each generation. For instance, state-centered theory tends toward an epistemology of portability—that revolutions have some general and universal patterns—and theory of contingency tends toward an epistemology of groundedness—that revolutions depend on particular, historically bounded contingencies.

What accounts for the continued epistemic division between portability and groundedness in contemporary revolution theory? To address this question, I rely on an insight from Skocpol and Somers (1980) that different styles of comparative history necessitate different types of cases and comparison. They identify three different modes of analysis. The first is *parallel demonstration of theory*, where the researcher juxtaposes various instances to show that a theory applies to all cases that it logically ought to fit. Cases examined thus represent many possible comparisons across a range of types (Skocpol and Somers 1980). This method tends to generate portable knowledge as its very intent is generalizability. The second mode of analysis is *contrast of contexts*. Here, cases are used to highlight their unique features and show how their uniqueness affects the theoretical propositions, with comparison usually controlling for geography or era (Skocpol and Somers 1980). Contrast of contexts typically produces grounded knowledge close to its cases as this is its very intent. Finally, *macro-causal analysis* seeks to provide causal inferences about larger processes. Cases are used to show the veracity of an explanation, and comparison seeks to control for other factors by placing some historical bounds on investigation, often familial types (Skocpol and Somers 1980). This yields some portability in knowledge but with some groundedness due to its familial typical boundaries. Taken together, the three analytic styles form a triangle of comparative history (see Skocpol and Somers 1980:Figure 2) where theory may be applied in a top-down method, developed in a bottom-up process, or generalized within certain scope conditions. This remains an excellent way to think of the purposes of comparative analysis—different types of comparison suit different types of analysis and thus generate different types of knowledge.

Skocpol and Somers's (1980) account implies different comparative configurations of cases. I thus argue that comparison can be thought of in network terms. Cases can be

conceived of as nodes and the comparisons between cases as ties between two nodes. Each mode of comparative history would thus result in a different type of network. To illustrate, imagine three cases that have all been compared to each other in a single study. The network structure is the same no matter the mode of investigation—a triad of three nodes and three edges. But what comprises the network structure will differ. In parallel demonstration of theory, the cases are diverse, coming from various times, places, and even types. In contrast of contexts, the cases are more similar, sharing a time or a place. Finally, in macro-causal analysis, there is some variation among cases, but they are bounded in a legible and logical fashion along the lines of familial types. Thus, what method of analysis is used for a study could be understood by considering its network of comparison alone, even without reading the text.

But epistemologies do not come from a single, however influential, study of a phenomenon. Rather, they are the accumulation of knowledge in an entire field. Thus, the epistemic positions of a comparative field can be determined by considering its structure of comparison as a whole. Figure 1 provides idealized sketches of the possibilities. In the first network (Figure 1a), comparison is evenly spread throughout the universe of 10 cases; all cases have been compared to all other cases. This network is akin to parallel demonstration of theory, and portable knowledge will likely accumulate. In the second network (Figure 1b), cases are compared to each other in isolated clusters. Grounded knowledge is the likeliest result; comparison is not portable to other contexts because there are no bridging ties between clusters. Finally, Figure 1c shows a mix of the two previous ideal types—some clustering in comparison occurs, but clusters are linked to each other. This suggests a balance between portability and groundedness, as in macro-causal analysis.

I argue that these networks of comparison, for a comparative field as a whole, precede the accumulation of knowledge and the development of an epistemology. As cases are linked, or not, to each other through strong and weak ties, different configurations develop. This network structure affects the likelihood that a given epistemological position will have the empirical support to develop, as Skocpol and Somers (1980) argue. The preceding structure of comparison thus points the way to subsequent theory generation. Metaphorically speaking, if Skocpol had not written *States and Social Revolutions* or McAdam, Tarrow, and Tilly had not published *Dynamics of Contention*, then we would have had to invent them.

I next examine the evidence for which structure of comparison dominates the study of revolution using two sets of analyses: investigating cases and comparisons in the network overall and over-time analyses that confirm comparison precedes epistemology.

DATA ON REVOLUTIONARY CASES AND COMPARATIVE NETWORKS

The data for this study are a near complete sample of social scientific studies of revolution that use the case comparative method published in English between 1970 and 2009. I searched peer-reviewed articles and books listed in three central social science databases (Sociological Abstracts, Worldwide Political Science Abstracts, and PAIS International) and one general database (Books in Print) using subject headings with wildcard variants of the keyword *revolution*.[1] This method yielded 6,621 entries from 1970 to 2009 (although in the case of Books in Print, not necessarily unique works because reprints are counted). I verified the results using two annotated bibliographies to check for missing studies—Goodwin's (2001) appendix and Tilly's (2005) personal bibliography made public by Christian Davenport after Tilly's passing in 2008.

From these lists, I identified comparative case studies for inclusion in the data set using two criteria. First, the study must examine at least two or more cases (whether actual historic

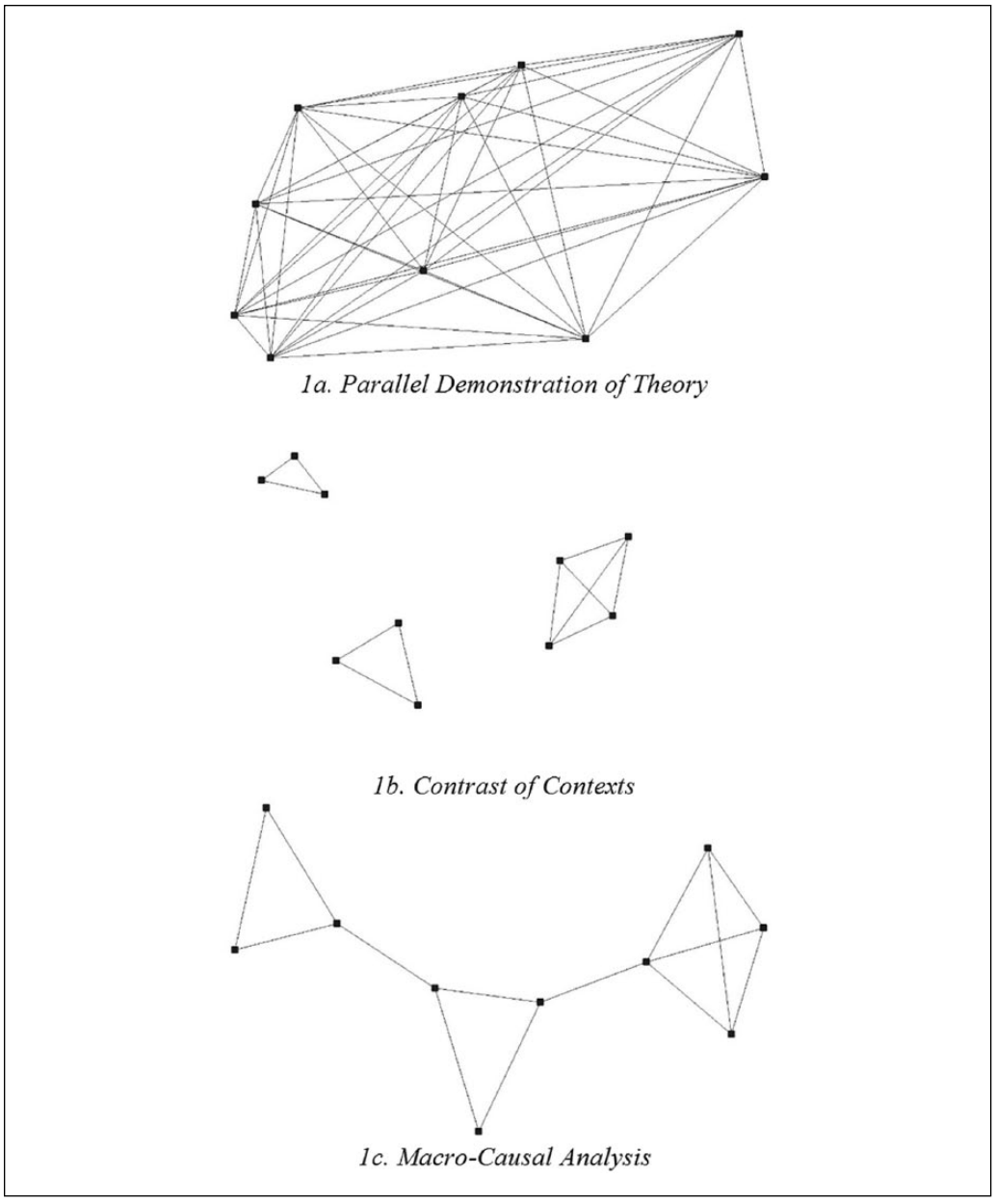


Figure 1. Three modes of comparative history as ideal-typical networks of 10 cases.

events or negative cases), per the author of the study's own treatment of what constitutes a case.[2] Second, the strategy of analysis must be comparative, again relying on authors' own assessment of their methodology. In the absence of explicit claims of comparative method (which occurs in a notable minority of studies; see Beck 2017a), two or more cases that are given roughly equal treatment are considered comparative. These criteria encompass works that use multiple analytic strategies; for instance, Paige's (1975) study of agrarian revolution includes both case comparisons and basic statistical tests.

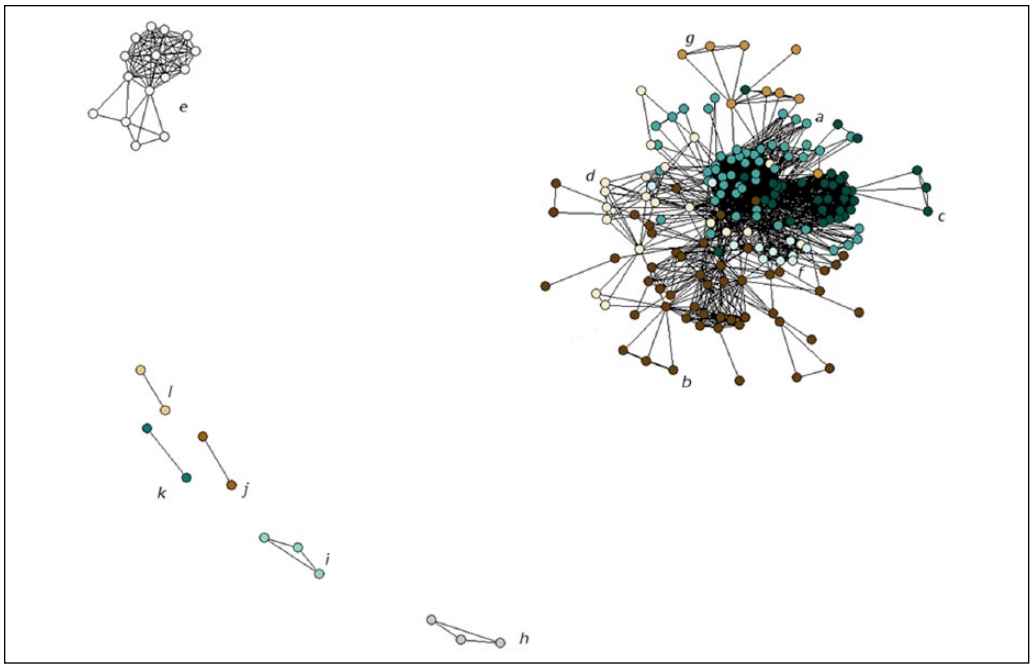


Figure 2. Network of comparative cases of revolution, 1970–2009.

This method of identification yielded a sample of 148 comparative case studies, ranging from small N studies, as in Skocpol's (1979) famous analysis, to medium N studies that use methods like qualitative comparative analysis, as in Foran's (2005) survey of Third World revolutions. The studies cover 203 different revolutionary events that have been studied multiple times, yielding 639 cases. The cases are from 96 countries or regions, occurring as early as the third century BCE to as recently as 2005 and including successful revolutions, failed or ongoing revolutionary situations, and negative cases where revolutionary contention did not occur.

With this sampling strategy, I attempted to identify the entire population of studies that use the case comparative method, but there are possible limitations and biases. First, the selection strategy does not capture studies of single revolutions or include the (few) solely statistical studies of revolution. It also excludes comparisons that are made in passing as implications or contrasts, which leaves aside the voluminous literature on revolutions in humanistic fields like history as well as general surveys, theoretical treatises, and other works with non-empirical goals.[3] Consequently, the data do not account for the turn in historical sociology toward the framing "in comparative perspective" used by studies that primarily focus on a single case. As such, the sample best represents a method—the increasingly formalized case comparison (see George and Bennett 2005; Gerring 2007; Goertz and Mahoney 2012). The social science of revolution predominantly relies on case comparison to develop its theories (Goldstone 2003), even though it is only one form of historical sociology (Steinmetz 2004). This suggests that comparative case studies are a good representation of knowledge in the field more broadly. There is also an analytic choice made here: focusing on comparison allows for an investigation of the relationship between multiple studies' empirical bases and how they generate an epistemology.

Second, the sample only covers works published in English. Non–English language studies might have different patterns. However, given the *lingua anglo* of contemporary social science, it is an acceptable boundary to the sample. It is also reasonable to suspect that

non-English sources in regional publications would focus on local events, which would only magnify the patterns I discuss in the following. As with any sample, the absence of a study or two is unlikely to change the overall patterns of epistemology described.

Case Attributes

I identified and coded six characteristics of the cases from the studies and secondary sources. First is the era of a case, in world-historical terms, determined by the year of the case's onset.[4] Next, I coded the geographic location of a case by region. The few cases that are multiregional events are coded as such. Third, although revolutions are complex events, it is possible to identify their primary mode of contention to help distinguish between types of revolution (e.g., Stephan and Chenoweth 2008). I identified four different types of contention, differentiating between those conducted through organized violence, mobilization more typical of social movement repertoires, revolutions from above, and interstate or cross-border conflicts. Given the presence of negative cases in the sample and the complexity of some cases, I categorized each of these separately.

Ideological character is another attribute of revolution that distinguishes its type. Ideology is often dynamic and emergent in revolutionary situations, but the popular understanding of revolutions settles in their aftermath, allowing for such an appraisal (Parker 1999). I coded challengers' primary ideological basis in seven categories—leftist, democratic, national-separatist, religious, and reactionary, with separate categories for complex cases and negative cases. Finally, I coded the outcome of a revolutionary case in an ordered fashion: social revolutions that change both regime and society (per Skocpol's [1979] definition and Goodwin's [2001] and Foran's [2005] determinations), political revolutions that change a regime or governance structure but do not lead to lasting social change (see Goldstone 1991), and cases of failure or ongoing contention (which approximates Tilly's [1993] definition of a revolutionary situation as effective, incompatible dual claims to sovereignty). As with the other attributes, I included categories for negative cases and other outcomes. Table 1 summarizes the sample overall and the distribution of attributes for the 639 comparative cases.

Constructing Network Data

I used cases' joint appearance in the same study to construct one-mode network data where a unique case is the node and a comparison is the edge. For example, a study with two cases would yield one reciprocal dyad, a study with three cases would yield one triad, and so on. Where cases appear in multiple studies, studies' case comparisons are linked to each other through strong and weak ties. Figure 2 presents the resulting network of 203 nodes encompassing 1,756 dyads, composed of a main core and six isolated sets of relationships. The overall sum of ties (i.e., joint appearance in one or more studies) is 5,278, with maximum tie strength of 20, and the overall network density is .129. The disconnected subgraphs (which will be discussed in more detail) represent individual studies, such as Katz's (1997) study of revolutionary waves, or distinct sub-literatures, such as the study of the postcommunist Colour Revolutions in Eastern Europe.

I analyze these data in two different ways. First, I examine the comparative network as a whole, investigating which cases are the most popular for study, which attributes of cases are most common, and what type of knowledge might result. Second, I consider the change over time in cases and the structure of comparison to show that the practice of case comparison precedes the development of the revolution field's epistemologies. Finally, I discuss an implication of this work—to what extent casing and comparison represents the actual universe of revolutionary events.

Table 1. Frequency of Study of Comparative Cases by Revolutionary Attributes, 1970–2009.

Attribute	1970–2009	1970s	1980s	1990s	2000s
Era					
Before 1500	3	0	1	1	1
1500–1775	24	2	6	12	4
1776–1913	123	33	16	47	27
1914–1945	68	20	12	18	18
1946–1988	367	45	78	163	81
1989 on	54	–	–	13	41
Region					
Western Europe/Anglo North America	91	20	16	29	26
Eeastern Europe/former USSR	103	10	13	27	53
Latin America/Caribbean	243	22	48	129	44
Middle East/North Africa	65	12	10	28	15
Sub-Saharan Africa	46	13	8	11	14
Asia	89	23	18	28	20
Global/multiregion	2	0	0	2	
Primary mode of contention					
Insurgency, terrorism, civil war	334	58	74	138	64
Mass uprising, social movement	177	23	26	63	65
From above, coup, repression	40	11	3	17	9
Interstate war, cross-border	5	1	2	0	2
Other, complex	30	4	2	11	13
Negative case	53	3	6	25	19
Contenders' primary ideological basis					
Leftist, Marxist, anarchist	257	34	55	119	49
Democratic, republican, inclusive	140	18	13	45	64
National-separatist, anti-colonial	83	28	18	21	16
Religious	38	0	8	20	10
Reactionary, right-wing, statist	22	8	3	6	5
Other, complex	46	9	10	18	9
Negative case	53	3	6	25	19
Outcome					
Social revolution	256	42	52	109	53
Political revolution, regime change	136	32	15	35	54
Ongoing contention, failure	149	18	33	65	33
Other, complex	45	5	7	20	13
Negative case	53	3	6	25	19
N of cases	639	100	113	254	172
N of unique cases	203	51	59	107	101
N of studies	148	24	31	54	39
Mean cases per study	4.3	4.1	3.7	4.7	4.4

THE STRUCTURE OF COMPARISON, 1970–2009

I now turn to the nature of cases and structure of comparison overall in case comparative study of revolution since 1970. I begin by presenting which cases are most preferred for study. Second, I examine the network of case comparisons to reveal what type of empirical knowledge is most likely to be generated. I investigate clustering in the network to establish its commonality and determine what composes clusters. Then I examine homophily in dyadic

Table 2. Cases of Revolution Studied Comparatively 10 or More Times, 1970–2009.

Event	N of Times Studied	Normalized Degree Centrality
Nicaragua, 1979	39	4.93
Cuba, 1959	31	5.07
Russia, 1917	30	2.35
France, 1789	24	2.17
Iran, 1979	23	2.40
El Salvador, 1980	22	3.59
China, 1927	18	2.65
Vietnam, 1946	17	2.57
Mexico, 1910	14	2.52
Guatemala, 1960	12	3.19
Bolivia, 1952	11	1.83
England, 1642	10	1.36
Mean all cases	3.2	.64

comparison to see the patterns in the juxtaposition of cases. The results suggest considerable homophily in comparison and clusters, especially by geography and era, which is most amenable to a relatively grounded epistemology.

It is no secret that particular revolutions are particularly popular, returned to by scholars numerous times. These cases might be especially fertile for analysis or represent prototypes to which other cases are compared (Gerring 2007; Goertz and Mahoney 2012); they could even be considered "model organisms" for the social science of revolution (Guggenheim and Krause 2012). What is surprising, however, is which events are the most popular. Table 2 presents the cases that have been studied 10 or more times in the past 40 years. The Nicaraguan Revolution of 1979 is the most common case, having been studied 39 different times and making up 6 percent of all cases by itself. The second most popular case is another Latin American socialist revolution—Cuba in 1959. Classic cases do not appear until the third and fourth places, the Russian Revolution of 1917 and France in 1789. This pattern is repeated across the most popular events—the Salvadoran Civil War is almost as popular as the more historically notable Islamic Revolution in Iran, and mid–twentieth century revolutionary situations in Guatemala and Bolivia outpace the English Civil War and Glorious Revolution of the seventeenth century. Overall, popular revolutions for study seem to be either Latin American or classic cases.

Altogether, the dozen most popular cases comprise 39 percent of all units of analysis (meaning that 191 other cases make up the remaining 60 percent) and are far above the mean popularity of 3.2. The picture is much the same in network terms. Each of the most studied cases ranks quite high in normalized valued degree centrality—the number of cases that have been compared to a particular node—and altogether hold a 27 percent share of network ties. Not surprisingly, valued degree centrality correlates highly with the frequency of a case's study (ß = .801, $p < .001$). This is not a pattern a historiographer of revolution might expect. World historically important events, such as the great revolutions of 1848 in Europe or the collapse of communism of 1989, do not make the list at all. And seemingly historically trivial cases, like the Bolivian Revolution of 1952, are popular.

But what of comparisons between cases? As previously argued, comparisons that generate portable knowledge tend to be made between cases that cross temporal and spatial bounds. If comparison crosses type families of cases, then a parallel demonstration of theory epistemology could result. Accordingly, we would expect such a network to be fairly

Table 3. Cluster Size, Density, E-I Score, and Exemplars from Louvain Community Detection Algorithm, 1970–2009.

Cluster	Nodes	Ties within Group	Density within Group	E-I Index	Exemplars
a	53	1,234	.448	−.514	Vietnam, Iranian Islamic Revolution
b	50	622	.254	−.591	Russian Revolution, French Revolution
c	34	1,844	1.643	−.473	Cuban Revolution, Nicaraguan Revolution
d	20	112	.295	−.189	Malay Emergency, Mau Mau Rebellion
e	15	148	.705	−1.000	Orange Revolution, Rose Revolution
f[a]	10	90	1.000	−.250	Brazilian Revolution of 1930, Albanian June Revolution
g	9	44	.611	−.700	Solidarity, Hungarian Uprising of 1956
h[b]	3	6	1.000	−1.000	Arab Nationalism, Marxism-Leninist Wave
i[b]	3	6	1.000	−1.000	War of Spanish Succession, Camisard Revolt
j[b]	2	2	1.000	−1.000	Estonia 1989, Latvia 1989
k[b]	2	2	1.000	−1.000	Irish Nationalists, Narodnya Volna
l[b]	2	2	1.000	−1.000	Rwandan Genocide, Sri Lankan CivilWar
Network	203	3,512	.129	−.508	

[a]From primarily one study.
[b]From only one study (isolated subgraph).

cohesive, with limited isolates and clusters, creating the potential for portable theoretical inferences. On the other hand, comparisons that generate grounded knowledge, a contrast of contexts epistemology, tend to fall within spatial and temporal boundaries. A network of this sort would be more fragmented and have clusters determined by era and place. In between the two poles is historically bounded knowledge that is portable to other contexts, as in macro-causal analysis. Although clustering in the network occurs here, the clusters are legible as distinct sets of cases and there would be dense connections between clusters.

The entire comparative network, as presented in Figure 2, has clear clustering, several isolates, and a number of pendants. Pendants form when relatively understudied cases are compared to a relatively more popular one, and isolates are the result of no bridging ties. Clearly, comparison is not evenly distributed among the cases studied. A meta-theoretical position of the complete portability of theories of revolution is thus less likely to develop from revolution studies as a whole. But clustering can lend itself to grounded or portable knowledge, depending on which comparisons comprise clusters. I thus examine clustering in more detail using the Louvain community detection algorithm as implemented in Pajek. This procedure identifies the sets of cases that are more connected to each other than to other nodes, and it allows clusters' boundaries to be seen. The algorithm identifies 12 distinct communities in the network overall.[5] Table 3 presents information about these clusters, which are represented in Figure 2: their size, their density, and a measure of homophily between nodes, the E-I Index, which compares in-group ties to out-group ties to determine how homophilous a cluster is on a scale of −1 to 1. Smaller E-I scores indicate greater homophily.

Of the 12 clusters, 5 are disconnected subgraphs, and all but 1 of these are exclusively made up of one study that has events not studied elsewhere (clusters *h, i, j, k*, and *l* in Table 3). The remaining clusters tell us more about the structure of comparison. The two largest

Table 4. Ten Most Frequent Comparisons of Revolutions, 1970–2009.

Case 1	Case 2	N of Comparisons
Nicaragua, 1979	Cuba, 1959	20
Russia, 1917	France, 1789	18
Nicaragua, 1979	El Salvador, 1980	17
Nicaragua, 1979	Iran, 1979	13
El Salvador, 1980	Guatemala, 1960	11
Russia, 1917	China, 1927	11
Nicaragua, 1979	Guatemala, 1960	10
Cuba, 1959	Vietnam, 1946	9
France, 1789	England, 1642	9
Cuba, 1959	Bolivia, 1952	9
N dyads		1,756
Mean tie strength		1.50

clusters, *a* and *b*, seem to represent twentieth-century semi-peripheral revolutions (53 nodes) and classic great revolutions (50 nodes), respectively, and cover about half of the unique cases studied overall. The third largest community, *c* with 34 cases, is primarily Latin American revolutions. Cluster *d* focuses on the mostly nonviolent or pacted transitions of the 1980s and early 1990s, and cluster *e* is the disconnected subgraph of the Colour Revolutions literature. Finally, clusters *f* and *g* appear to be small sets of studies focused on military revolutions and mid–twentieth century resistance to communism.

The densest and most intraconnected cluster is that of the Latin American revolutions (cluster *c*), which means numerous studies have used comparisons within this region alone. Of the other large clusters, the great revolutions community (cluster *b*) is less dense but has relatively high homophily (given by the E-I index score of –.591). The great social revolutions are not studied as frequently as some other clusters, and they tend to be compared to one another. Similarly, semi-peripheral revolutions (cluster *d*) and Latin American revolutions are relatively homophilous. These results, and the perfectly homophilous Colour Revolutions cluster (*e*), suggest that clusters form along lines of region and era primarily and only secondarily according to type of case. There is little evidence that clusters are the result of cross-typological comparisons that would create perfectly portable knowledge. Rather, the clustering that occurs is most likely to produce grounded knowledge within sets of similar cases.

To assess this pattern further, I consider which comparisons are most frequently drawn. Table 4 presents the most common dyads within the entire network. The Nicaraguan Revolution compared to the Cuban Revolution is the most common comparison. In close second place is comparison of the Russian Revolution to the French Revolution. Comparison between Latin American cases makes up half of the 10 most frequent dyads, and not a single top 10 comparison breaks either era, geographic, or familial type boundaries.

This impression is supported by analyses using quadratic assignment procedures (QAP). QAP correlation compares random permutations of dyadic ties in a network to the observed ties to generate estimates of statistical significance based on attributes of the node. In other words, it allows us to see if cases that share similar attributes are more or less likely to be compared to one another than chance alone would dictate. I use the coding of case attributes detailed previously as a measure of homophily. Thus, the variables are dyads that share the same era, region, mode of contention, ideological basis, or outcome. Table 5 reports the results of QAP correlation of the homophily between cases.

Table 5. Quadratic Assignment Procedures Pearson Correlation of Revolutionary Cases with Same Attributes and Observed Dyads, 5,000 Permutations.

Attribute	Whole Network	2+ Study Network
Era of onset	−.023	.289***
Region of occurrence	.004	.414***
Mode of contention	−.004	.132***
Ideological basis	.006	.151***
Outcome	.005	.116***

***$p < .001$.

As 52 percent of cases are only studied once, it is not surprising that there is no significant correlation between case attributes and the likelihood of comparison for the entire network. Key to my argument is that comparison in the field as a whole, not individual studies, generates epistemologies. Thus, I also calculate QAP correlations for cases that have been compared more than once, which indicates some consensus about how these cases can be used. Here, there is significant homophily across all characteristics. The strongest correlation is for cases that share the same time period, with the same region the second strongest. Positive correlation among mode, ideology, and outcome are also statistically significant yet with weaker effects. The correlation for these latter attributes may be weaker because of the use of negative cases (17 percent of all unique cases), which are coded as not sharing the attributes of others. In other words, there is a high degree of homophily in comparison, and it is most likely to occur because of temporal-spatial boundaries first and familial types second.[6]

In summary, analyses of the overall structure of cases and comparison in the comparative study of revolution point to the same conclusion. Casing seems to be driven by a particular image of what constitutes a revolution or, at least, a revolution worth studying. And this image is not that of a great, classic revolution like France in 1789 but a more modern form—the leftist, insurgent social revolution. The form is historically bounded, occurring primarily in the post–World War II era, and certainly reached one of its apogees in Latin America, which might explain that region's prevalence. Accordingly, comparison tends to cluster along temporal and spatial boundaries or, secondarily, within familial types of revolutions. Similarity in time and space also strongly predicts dyadic comparison, and case comparisons of similar events predominate in general. This makes sense in that scholars often try to control for time and space in their comparative design. But this has an implication for the knowledge that can develop.

There does not appear to be an empirical foundation that would generate an epistemology of entirely portable knowledge, as in the parallel demonstration of theory mode of analysis. Because some comparisons are made within families of cases, the comparative study of revolution as a whole can generate a degree of portable macro-causal knowledge. But since most cases and comparisons fall within temporal and spatial boundaries, the epistemological position most likely to result is that of grounded knowledge, as in contrast of contexts. In short, the structure of comparison in the social science of revolution is best positioned to produce historically bounded knowledge and support an epistemology that prefers groundedness to portability.

Yet different epistemologies have dominated the field at different times, as previously described. The key argument of this article is that the empirical basis of the field predates the development of an understanding of what revolution is in general. I present the evidence for this argument in the next section.

Table 6. Five Most Frequently Studied Cases of Revolution by Decade.

1970s		1980s		1990s		2000s	
Event	N	Event	N	Event	N	Event	N
Russia, 1917	8	Nicaragua, 1979	11	Nicaragua, 1979	21	Nicaragua, 1979	7
China, 1911	6	Cuba, 1959	8	Iran, 1979	13	Russia, 1917	6
Cuba, 1959	6	El Salvador, 1980	6	Cuba, 1959	12	Ukraine, 2004	6
Japan, 1867	5	France, 1789	5	El Salvador, 1980	11	Cuba, 1959	5
Vietnam, 1946	5	Iran, 1979	5	France, 1789	11	El Salvador, 1980	5
		Russia, 1917	5	Russia, 1917	11	Georgia, 2003	5
		Vietnam, 1946	5			Iran, 1979	5
						Serbia, 1999	5
Mean case popularity	2.0		1.9		2.4		1.7

CASES AND COMPARISONS OVER TIME

If the empirical basis of a comparative field affects the sort of knowledge that can be had, then analysis of the change in the structure of comparison over time should show that an empirical configuration precedes the development of an epistemology of revolution. In this section, I present over-time analyses in a fashion parallel to the preceding section: examination of popular cases and comparisons, followed by analysis of the comparative network. As described previously, recent epistemologies of revolution theory have two key timepoints. An epistemology of portable causes of revolution emerged in the late 1970s and lasted primarily through the 1980s, and an epistemology of grounded knowledge emerged in the mid-1990s and persisted throughout the 2000s. I thus use the decade as the primary unit of time to investigate the patterns. The number of studies in each decade varies, from as few as 24 in the 1970s to a high of 54 in the 1990s, but the average number of cases in each study is fairly constant around 4 (see Table 1). Thus, changes in comparative methods (see Mahoney 2004; Ragin 2008) have not much affected the number of cases used by scholars.

Table 6 presents the five most popular revolutionary cases for study by decade. Even before considering which cases are popular, there is a notable pattern in how many rank among the most frequently studied. In the 1970s, there was a clear top five with no ties for a rank, but by the 2000s, five cases tie for the fourth most popular. This suggests a growing fragmentation in which cases are emphasized. The top five list also changes substantially from decade to decade. In the 1970s, the focus was on classic cases of revolution—Russia in 1917, China in 1911, and Japan in 1867—with a couple of Marxist insurgencies, Cuba and Vietnam, also being popular. Interestingly, a majority of these are clear cases of leftist movements. But these cases do not remain as popular over time. By the 1980s, Latin American events begin to dominate—Nicaragua in 1979 emerges as the most popular case and remains so through 2009. Cuba maintains its popularity, and other Latin American cases appear, such as El Salvador. In the 2000s, the Colour Revolutions of Ukraine, Georgia, and Serbia emerge as another focus. This suggests that the recency of a case may influence its popularity and that the field grows through incorporation of new events rather than repeated examination of a consensually defined terrain.

Yet recency alone is not enough to explain popularity, as the example of Iran in 1979 demonstrates.[7] Although recent and popular in the 1980s, the case never receives the attention that Nicaragua does in subsequent decades. And the collapse of communism in 1989, as

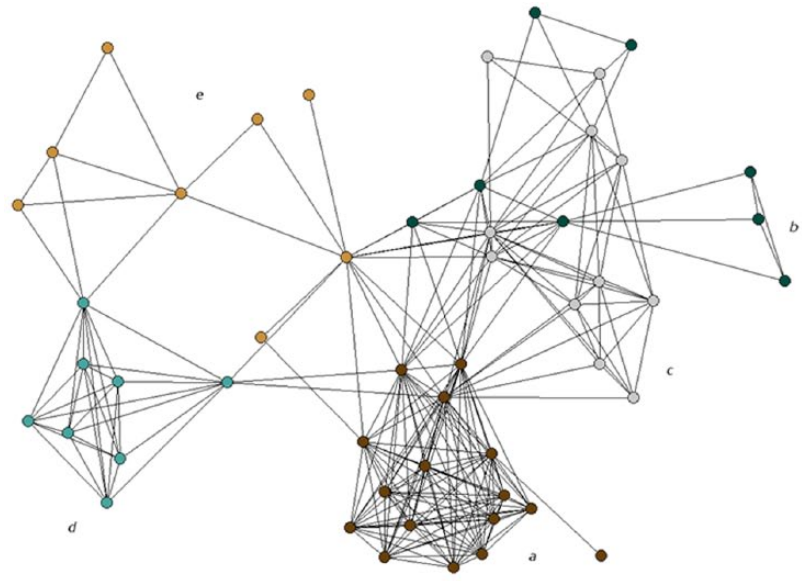
either a global event or individual country cases, never rises to among the most popular. In fact, all the cases beginning in 1989 have only been studied 19 times overall, far less than the Nicaraguan Revolution and still less than events of the similarly momentous year 1946, which have been studied 39 times.

As previously noted, Table 1 presents changes over time in scholarly focus. In the 1970s and 1980s, social revolutions are associated with greater popularity. By the 1990s, however, a Latin American setting and leftist mobilizations also result in more casing, and in the 2000s, insurgencies fall out of favor as a focus on nonviolent revolutions like the Colour Revolutions emerges. Supplementary regression analyses support this interpretation.[8] Only the outcome of social revolution consistently predicts popularity across the decades. Leftist cases, as well, predict popularity in the 1990s and 2000s. Overall, this suggests social revolutions are the most popular for study no matter the decade, and an increasing number of other factors are significantly associated with popularity as the decades pass. In short, in later decades, more and different cases become popular, and their popularity is driven by more and different characteristics. By the 2000s, there is increasing fragmentation in the field. And a fragmented field of study is not well suited to develop portable explanations of revolutions. Grounded knowledge is the logical result.

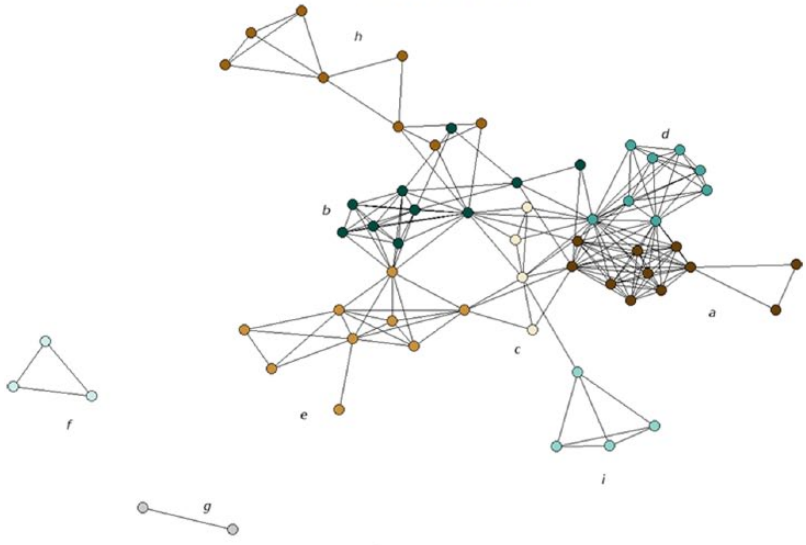
Change in the structure of comparison also supports this interpretation. Figure 3 presents the network of case comparisons for each decade. We see a visible fragmentation of the field over time. In the 1970s, the network shows only a few clusters that are not particularly denser than the network as a whole, suggesting that they are not strongly bounded comparisons. In the 1980s, pendants increase, and the clusters grow in density. By the 1990s, a network that looks like the overall structure of comparison emerges and persists throughout the 2000s: several isolates, increasing numbers of pendants, and clusters that are more tightly drawn. Over time, the density of the network overall decreases slightly, and the average number of ties increases. In other words, the number of comparisons rises, like the number of cases considered, but they increasingly take place within particular clusters.

This is borne out by Louvain community detection for each decade's network. In the 1970s (Figure 3a), we find 5 clusters, and all are legible as family types: Third World leftist revolutions like the Chinese Civil War, Cuban Revolution, and Mexican Revolution of 1910 (cluster *a*); semi-peripheral revolutions as previously described, like the Young Turks and Egypt in 1952 (cluster *b*); the classic, great revolutions (cluster *c*); anti-colonial insurgencies like that of the Mau Mau and Irish Republican Army (cluster *d*); and finally, 1960s decolonization cases such as in the Portuguese colonies and Vietnam (cluster *e*). In the 1980s (Figure 3b), we see nine clusters, and in the 1990s (Figure 3c), 10 clusters are detected. By the 2000s (Figure 3d), we find 13 communities. Notably, these clusters become less legible as types of revolutions, in contrast to the 1970s, and display greater spatial and temporal bounding. For instance, the 1980s network in Figure 3b includes two Latin American clusters (*a* and *d*). In the 1990s (Figure 3c), clusters are formed from regions like Latin America (cluster *b*) and Eastern Europe (clusters *c* and *f*) but also from twentieth-century Cold War events (clusters *e*). And in the 2000s (Figure 3d), we find even fewer legible clusters and an increasing number of isolates. The only cluster of the main core that is identifiable is a great revolutions cluster (cluster *b*).[9]

More tellingly, homophily in dyadic comparison also changes over time. Table 7 presents the most common dyadic comparisons by decade. In the 1970s, classic cases of revolution predominate, with the Russian Revolution compared to China's Revolution of 1911 being the most popular. The pattern switches in the 1980s as Latin American cases receive more attention. By the 1990s, only one popular dyad involves non–Latin American cases—the classic comparison of the Russian Revolution to the French Revolution. In the 2000s, Latin



3a. 1970s
N of nodes: 51
Sum of ties: 528



3b. 1980s
N of nodes: 59
Sum of ties: 434

(continued)

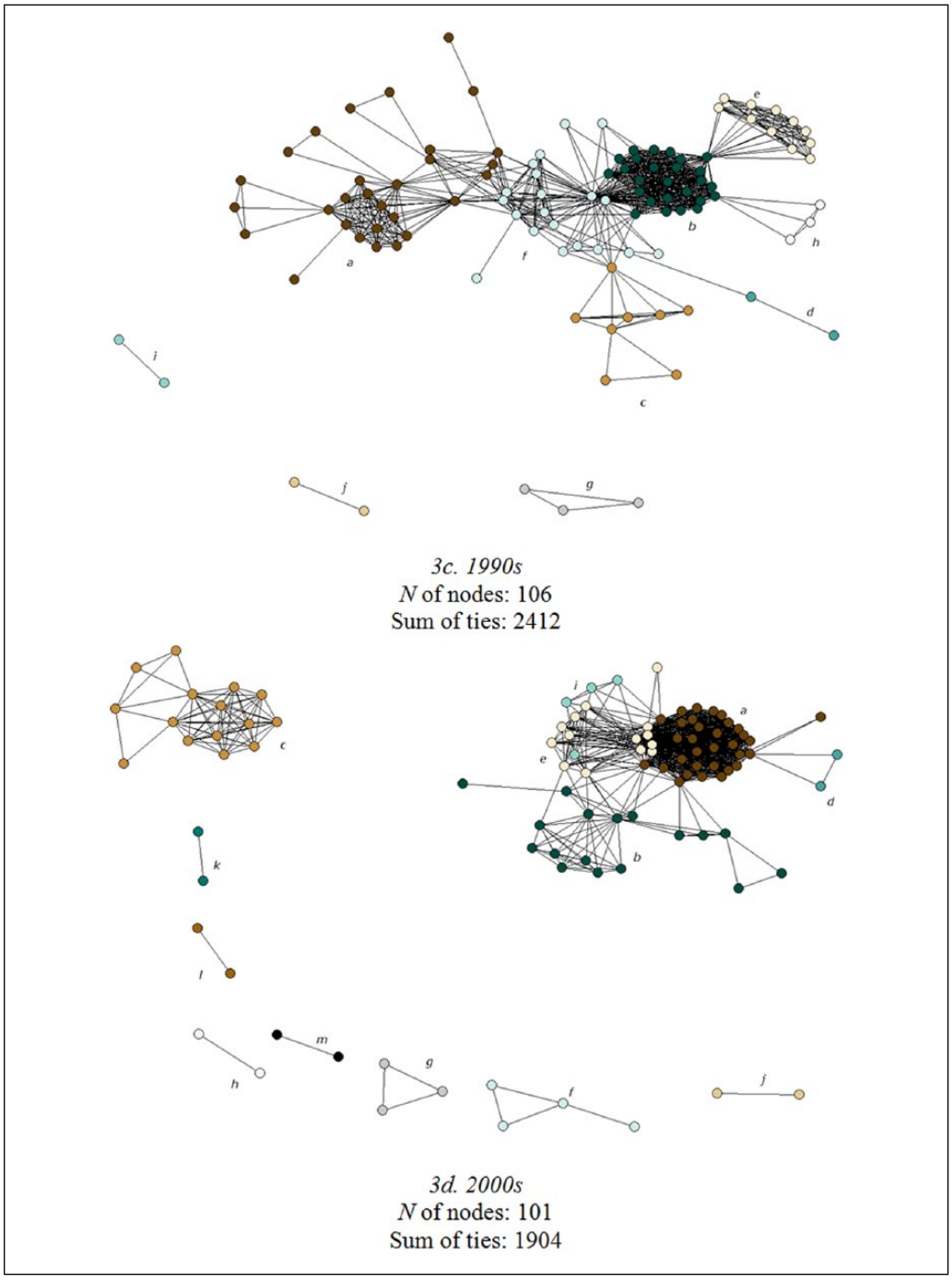


Figure 3. Network of comparative cases of revolution by decade.

Table 7. Five Most Frequent Comparisons of Revolutions by Decade.

1970s			1980s		
Case 1	Case 2	N	Case 1	Case 2	N
Russia, 1917	China, 1911	5	Nicaragua, 1979	Cuba, 1959	5
Russia, 1917	France, 1789	4	Nicaragua, 1979	El Salvador, 1980	5
France, 1789	China, 1911	3	Cuba, 1959	Bolivia, 1952	3
Japan, 1867	China, 1911	3	France, 1789	England, 1642	3
France, 1789	Prussia, 1806	3	Nicaragua, 1979	Iran, 1979	3
Russia, 1917	Prussia, 1806	3	Russia, 1917	France, 1789	3
N dyads	232		N dyads	189	
Mean tie strength	1.14		Mean tie strength	1.15	
1990s			**2000s**		
Case 1	Case 2	N	Case 1	Case 2	N
Nicaragua, 1979	Cuba, 1950	11	Nicaragua, 1979	Cuba, 1959	4
Nicaragua, 1979	El Salvador, 1980	9	Nicaragua, 1979	Iran, 1979	4
Russia, 1917	France, 1789	8	Ukraine, 2004	Serbia, 2000	4
El Salvador, 1980	Guatemala, 1960	7	Ukraine, 2004	Georgia, 2003	4
Nicaragua, 1979	Guatemala, 1960	6	Russia, 1917	China, 1946	3
Nicaragua, 1979	Iran, 1979	6	Russia, 1917	France, 1789	3
			Cuba, 1959	El Salvador, 1980	3
N dyads	720		Nicaragua, 1979	El Salvador, 1980	3
Mean tie strength	1.68		El Salvador, 1980	Peru, 1980	3
			Cuba, 1959	Vietnam, 1946	3
			Nicaragua, 1979	Vietnam, 1946	3
			N dyads	895	
			Mean tie strength	1.06	

Table 8. Quadratic Assignment Procedures Pearson Correlation of Revolutionary Cases with Same Attributes and Observed Dyads by Decade, 5,000 Permutations.

Attribute	1970s	1980s	1990s	2000s
Era of onset	.117**	.204***	.282***	.319***
Region of occurrence	.131***	.372***	.448***	.204***
Mode of contention	.082*	.117***	.168***	.107***
Ideological basis	.160***	.201***	.209***	.030
Outcome	.045	.086***	.207***	.055***

*$p < .05$. **$p < .01$. ***$p < .001$.

American comparisons are still popular, but comparisons of the recent Colour Revolutions emerge. What matters here is the pattern of homophilous comparison. Popular dyads tend to share times and geographies, with family type making a few appearances.

QAP correlations by decade confirm this trend (see Table 8). For each decade, similarity among cases correlates to the likelihood of their comparison (except for ideology, which falls out of favor in the 2000s), but the strength of the correlation changes markedly. In the 1970s, ideology is the strongest correlate of comparison but still has only relatively weak

influence. By the 1980s, however, region and time emerge as significant correlations with much greater effect. This is most pronounced in the 1990s and then lessens in the 2000s, which is when the other analyses indicate the study of revolution becomes less cohesive. In short, homophily in comparison, particularly for region and era, tends to increase over time until fragmentation sets in.

These results all substantiate the key argument of this article—the structure of comparison in revolution studies predates the epistemologies of the field and in fact may create them. For example, take the study of revolution in the 1970s. Here, what a revolution actually is is fairly well understood—revolutions are great social revolutions. Accordingly, comparison takes place somewhat evenly among the cases considered; when clustering occurs, it is within historically bounded familial types rather than temporal or spatial boundaries. This structure of comparison is amendable to an epistemic mixture of macro-causal analysis and parallel demonstration of theory. My argument expects such an empirical basis to generate portable knowledge. This is exactly what happens in 1979, when Skocpol publishes *States and Social Revolutions*. Her work advocates a macro-causal framework for understanding revolution—state breakdown theory—which has portable implications for cases beyond her initial scope conditions (see Skocpol 1982, 1994). If Skocpol had not published a macro-causal analysis, then someone else would have. The structure of comparison clearly pointed to it.

Contrast this to the situation of the mid-1990s, when an epistemology of the inherent uniqueness of every revolution and mechanistic perspectives began to emerge. Beforehand, at the turn of the 1980s, new events like Nicaragua took place and quickly dominated casing. More and different events were incorporated into study over time, and popularity was less centered on just a few classic cases. This could have been good news for the generation of portable theories applicable to many different cases, but the structure of comparison became more and more driven by homophily. Furthermore, comparisons of the 1980s and throughout the 1990s moved away from the macro-causal approach of familial types and toward contrast of contexts region- and era-bounded examinations. My theory anticipates that this comparative field would generate an increasingly grounded epistemic position about revolution, which is in fact what resulted. If the effect went in the other direction—a general understanding of revolution creates the structure of comparison—then we would expect to see the empirical traces of portable epistemologies in the 1980s and a structure of grounded epistemologies appear in the later 2000s. This is not the case. Comparison precedes epistemology.

REPRESENTING THE UNIVERSE OF REVOLUTIONS

If the epistemology of a field is based on which cases it considers, the question is how well the cases examined capture the universe of cases that actually exists. Perhaps revolution in general tends to a particular form, and thus the time, space, and type bounding identified here creates no issue for developing knowledge about revolution broadly. Alternatively, perhaps historical bounding has created selection bias as other variants of revolution have not been investigated as fully.

To answer this puzzle is quite difficult. It requires knowing what the universe of revolutions actually looks like and comparing what has been studied to what could be studied. In the absence of a near complete and consensual database of revolutionary events, definitive conclusions cannot be drawn. Yet inferences can still be made. I turn to a list of revolutionary events that is independent of the cases identified by this study: Charles Tilly's (1993) event catalogue of revolutionary situations that occurred in six different regions of Europe between 1492 and 1992.

Table 9. Distribution of Attributes of Unique Cases in Comparative Case Studies and Tilly's (1993) *European Revolutions*.

Attribute	Percentage of Unique Cases in Comparative Studies[a]	Percentage of Tilly's Revolutionary Situations
Mean year of onset (SD)	1925 (58)	1877 (53)
Region		
Low Countries	0	2.7
Iberia	10.3	39.8
Balkans and Hungary	33.3	39.8
British Isles	7.7	3.5
French states	15.4	7.1
Russian states	25.6	7.1
European-wide	7.7	0
Primary mode of contention		
Insurgency, etc.	23.1	40.7
Mass uprising, etc.	59.0	26.6
Revolution from above, etc.	7.7	22.1
Interstate war, cross-border	5.3	3.5
Other, complex	5.3	7.1
Contenders' primary ideological basis		
Leftist, etc.	25.6	8.9
Democratic, etc.	51.3	27.4
Nationalist-separatist, etc.	12.8	35.4
Religious, etc.	0	0
Reactionary, etc.	2.6	17.7
Other, unclear, complex	7.7	10.6
Outcome		
Social revolution	25.6	6.2
Political revolution	28.2	33.6
Contention, failure	33.3	54.0
Other, complex, unclear	12.8	6.2
N of unique cases	39	113

[a]The data for comparison include only events from 1789 to 1992 that occurred in Tilly's six regions of Europe, not including negative and counterfactual cases.

I make the contrast as fair as possible. First, from the sample of comparative revolution studies, I only include events that took place in Europe within the regions Tilly considered: the French states, the British Isles, the Low Countries, the Iberian Peninsula, the Balkans and Hungary, and the Russian states. Second, given that some have argued revolution is a modern phenomenon (Goodwin 2001), I limit the comparison to events on both lists that occurred from 1789 to 1992. This accounts for the possibility that some scholars would not count the diversity of early modern events in Tilly's catalogue, including civil wars and religious conflicts, as revolutionary (cf. Beck 2011). Table 9 summarizes the resulting lists by their attributes.

From 1789 to 1992, Tilly identifies 113 distinct revolutionary situations, whereas the comparative studies list I collected includes only 39 unique cases. The two lists have 24 cases in common, which is 62 percent of the events in the comparative studies list but merely 21 percent of Tilly's catalogue. Notably, the comparative studies' cases do not seem to

represent the "universe" of Tilly. The mean start year is much later for comparative studies, 1925, than in Tilly, 1877. Comparative studies' cases predominately take place in Eastern Europe and Russia, whereas Tilly identified many more events on the Iberian Peninsula. Modes of contention and ideological bases differ substantially as well. A majority of the comparative studies' cases have a mass uprising mode of contention, and Tilly's list has a plurality of insurgent forms of contention. The aforementioned revolutions are also much more common in Tilly than in the comparative studies. The ideological basis of revolutionary situations in Tilly tends to be nationalist-separatist or democratic, whereas comparative studies prefer democratic or leftist cases and discount reactionary contention. Finally, both lists agree that failure is the most common outcome, but comparative studies prefer social revolutions to Tilly's emphasis on regime change through political revolutions.

If we take Tilly's catalogue to be more exhaustive, due not only to its size but also its focus and cataloguer's skill, then we must conclude that comparative studies do a poor job of replicating the actual universe of revolution. This suggests that the accumulated knowledge of the comparative study of revolution, no matter its theoretical portability or groundedness, may have problems. Most of the knowledge garnered is on the basis of a handful of cases, and casing tends to prefer a particular type of revolution that is not reflective of the larger universe of events that have occurred. In short, casing may be limited by its historical bounds of time, place, and type. This conclusion requires further validation, but its plausibility should serve as a warning to those who claim consistent findings about how and why revolutions occur (e.g., Beck 2017b; Goldstone 2001, 2003; Goodwin 2001; Mann 2013).

CONCLUSIONS

I have argued that the meta-theoretical stance of a comparative field regarding its object of study is affected by its structure of comparison. Comparison, an inductive method, makes different types of knowledge more likely to accumulate dependent on its practice. At one extreme, it can lend itself to completely portable knowledge through the examination of many cases that are exhaustive of the phenomenon's universe, as in the parallel demonstration of theory. At the other extreme, it can be most conducive to the development of entirely grounded knowledge, where the temporal and spatial boundaries of comparison are paramount, as in the contrast of contexts. In between these two ends lies knowledge of the sort that macro-causal analysis generates, where the conclusions have implications for other cases but are, in the first place, bounded by type or history. Of course, individual studies can and do create different types of knowledge. To think otherwise would be to commit an ecological fallacy. The argument is thus at the level of a field overall and its general pattern of knowledge accumulation.

For the comparative study of revolution, all the analyses point to the same conclusion. In the field overall, a certain type of revolution is most commonly studied, and this is driven primarily by geography and era. Also, comparison in general is highly homophilous and strongly determined by similarities in space and time. This suggests the field of revolution has been most likely to develop grounded, rather than portable, knowledge. Changes in the structure of comparison over time suggest that empirics precede meta-theory. In the 1970s, the comparative study of revolution was well positioned to create an epistemology of the portability of findings and theories, which it had done by the 1980s. In the 1980s and 1990s, the study of revolution developed more geographically and temporally bounded comparisons that suggested an epistemology of grounded knowledge, which is exactly what emerged in the late 1990s and early 2000s. The evidence is clear—in the study of revolution, the structure of comparison has preceded general understandings of what can or should be learned from studying revolution.

There are three possible objections to this interpretation. First, I treat each comparative study equally and do not account for a study's reception in the field. I do so for good reason. I seek here to identify what the community of scholars is actually doing, not what they are citing. Such a weighting would obscure the approach of this analysis—that meta-theoretical stances are the product of the structure of comparison as a whole. Second, given the lag time between a study's origination and publication, can thought actually be traced over time? In my view, thought is the proverbial tree falling in the woods. Until a comparative study is published, the outside observer cannot discern it. A future analysis could attempt to control for publication lag time by examining the delivery dates of related conference papers and reshaping the data accordingly. In any case, the analysis undertaken here focuses on blocks of time rather than individual years, which helps account for this issue. Third, new events might drive epistemologies as much as structure of comparison does, as the recent explosion of nonviolent revolution research demonstrates (e.g., Lawson 2015; Nepstad 2011; Ritter 2015; Stephan and Chenoweth 2008). The data show that new events can change the structure of comparison. The Nicaraguan Revolution seems to bring attention to Latin America, and the Colour Revolutions bring postcommunist states into focus. But the data also show that some new events have little impact, such as the notable absence of 1989. It is also reasonable to ask why the Cuban Revolution did not make popular inroads before its comparison to Nicaragua or why the nonviolent uprisings of the 1980s—Philippines, Burma, and Eastern Europe—did not have such an impact before the 2000s. In short, it is not the occurrence of a revolution by itself that seems to matter here. It is how a new revolution fits with the prior structure of comparison.

A natural extension of this conclusion is to consider the structure of comparison in the 2000s and what the future holds for the study of revolution. All the analyses point to increasing fragmentation in the past decade—there are more cases, more comparisons, and more predictors of a case's popularity. Homophily in comparison has decreased a bit, but clustering remains along temporal and spatial lines, and the number of literatures disconnected empirically from the main field has grown (e.g., studies of the Colour Revolutions). We would expect this structure of comparison to generate increasingly fragmented knowledge and an epistemology of area studies expertise to emerge. I believe this is just what is happening, even as the Arab Spring has reinvigorated the study of revolution. Many early accounts of the Arab Spring seem to be empirically self-referential and seek to provide an explanation of the revolutions as a regional phenomenon or an expression of the zeitgeist (see e.g., Beck 2014; Goldstone 2013; Lawson 2015; Lynch 2013). Only a few authors have tried to make more portable comparisons (e.g., Ritter 2015). This stands in stark contrast to the empirical reality of these events, which could easily be compared to their forerunners (and inspirers) in the Colour Revolutions, the revolutions of 1989, or any other number of historically monumental cases. "Arab Spring studies" thus may very well develop as a mostly isolated cluster of comparisons. In short, the field is not yet on the cusp of a reemergence of epistemology that prioritizes portable knowledge.

The second implication for studies of revolution lies in the question of whether there actually are causes of revolution that are generalizable. The data suggest that the social science of revolution overall has not been, and still is not, well positioned to judge between competing causal imageries. Comparative studies tend to focus on a relatively small number of cases and comparisons that fit a particular image of revolution. Most cases considered revolutionary by scholars are studied only once, and most comparisons between cases have been drawn only once. A case's popularity is determined by only a few characteristics, and the prevalence of certain types of cases in the literature is not merely a reflection of what revolutionary events have occurred. The possible universe of revolution is much more diverse than what has been studied.

Moreover, the social science of revolution has evolved increasingly in the direction of specialty fields with a less broad empirical foundation, even as more events are considered revolutionary. A field that focuses heavily on a few cases and types of comparison is likely to generate an increasing number of explanations as each study tries to carve out a unique contribution to the well-established literature on a case. Sub-literatures, which are empirically disconnected from prior studies, would thus develop. Debates would occur in relative isolation from larger empirical referents and reject comparisons across different types of cases. In such a situation, causal factors and mechanisms would proliferate as there would be little adjudication between competing explanations and generalizable conclusions would be difficult to identify. Knowledge accumulation would accordingly be modest. This is in fact what seems to have occurred. The findings here suggest that a deficit of identifiable and generalizable causal conditions of revolution actually may be an artifact of the structure of comparison rather than in the nature of the phenomenon itself. The generalizability of explanations of revolution, or lack thereof, thus remains an open question.

There are also two implications for the practice of comparative-historical sociology more broadly. Much recent work on comparative-historical methods emphasizes the logic and strategies of causal inference when using single cases and small N comparisons (Gerring 2007; Goertz and Mahoney 2012; Ragin 2008). Less attention is paid to how the selection of comparisons can enable and constrain different types of knowledge. Yet Skocpol and Somers (1980) knew this dilemma well. The comparative scholar should go beyond merely being explicit about his or her case selection strategy and engage in explicit reflection about how the selection can influence his or her inductive theory development. Otherwise, it can be easy to mistake the findings of a comparative study for the truth of the phenomenon rather than just the truth of its comparisons.

Second, comparative fields may inherently run the risk of theoretical and empirical fragmentation. A common strategy of causal inference is to control for alternative explanations by comparing cases that are most similar to each other (Gerring 2007). This strategy appears to be the primary one present in the study of revolution as geographic and temporal homophily typify comparison. Yet such groundedness can create the conditions under which knowledge accumulation slows. One antidote is for a subfield to embrace a wider diversity of methods of inference so that its structure of comparison remains robust. Another is to self-consciously consider the role of "model systems" in knowledge accumulation (Guggenheim and Krause 2012). There could be a risk of narrowness in continual visits to single cases, especially if the case is not a seminal one, as we see in the focus on the Nicaraguan Revolution. But when compared widely and frequently, such prototypes could anchor a field and prove a testing ground for competing theories, just as Skocpol and Somers (1980) might imagine. In short, comparative-historical sociology can learn how to improve its practice from the cautionary example of the sociology of revolution over the past two decades.

This study also suggests an opportunity for sociology of science. I have documented the correspondence between the preceding structure of comparison and the sensibility of the subsequent theoretical generation. This suggests that social scientific knowledge systems may evolve somewhat differently from what followers of Kuhn (1962) would expect. Epistemological shifts do not appear to come from the accrual of contradictory findings but rather from the accrual of contradictory modes of analysis. Method points to theory. Yet the evidence here cannot tell us the mechanisms behind this pattern. For this, the social organization of the subfield, the networks of scholars, and their attributes require further investigation, in line with classic approaches (e.g., Bourdieu 2004; Latour 1987; Merton 1973). For example, it is striking that so few scholars of revolution hold positions in major research universities. This might be due to the pressures of academic hiring and career advancement. Revolution is certainly a boutique topic within the boutique subfield of comparative history. The field, in Bourdieusian terms, thus might not

support anything but stagnation in knowledge accumulation. Or perhaps revolution studies is less likely to develop schools of thought that can sustain themselves across scholarly generations, from master to pupil (see Collins 2000). Networks of revolution scholars are thus likely to be limited in scope and may not be able to perform the work of theory development. Initial appraisal of scholarly networks in the study of revolution—revealed by the acknowledgments sections of books—suggests this is the case. Only a handful of researchers reciprocally acknowledge each other, and there are few master-pupil ties among the authors, particularly since the 1980s.

A sociology of knowledge approach might also explain some of the quizzical patterns found in the data presented here. For instance, there is a clear preference for Nicaragua over Iran, even though both events occurred in 1979, the same year the field was revived with the publication of *States and Social Revolutions*. Perhaps this preference is due to ideological bent or an experience of activism: A socialist revolution might be more compelling to a scholar than a religious one. Or perhaps this focus is due to practical reasons. Researchers, at least in the United States where most sociology of revolution is made, are more likely to speak Spanish than Farsi, and thus one case is more accessible than the other. We also see a surprising occlusion of the collapse of communism as an object of study. The year 1989 figures prominently in studies of democratization and socioeconomic transformation, but it seems to have been forgotten by revolution scholars, perhaps because it does not fit with the dominant type of revolution investigated. We thus must conclude that Latin Americanists, for whatever reasons, tend to see their cases as ones of revolution, whereas postcommunism scholars do not. This case again suggests that world-historical importance is not the primary driver of theorization. Comparisons and the resulting epistemologies thus may be due to the nature of scholarly production rather than the nature of revolution itself.

The explanation for why comparison precedes epistemology likely lies in such approaches. The idiosyncrasies and knowledge of individual researchers and the opportunities and structure of the epistemic community may help generate particular comparisons that lead in turn to particular theoretical imageries at particular times. Future research should examine these possibilities more deeply than space allows for here. Such analysis could reveal the mechanisms of the relationship between epistemology and comparison identified by this study.

Overall, this study has demonstrated the utility of considering an entire subfield to draw inferences about empiricism and theorization. The consistency of the results indicates there are analytic advantages to conceptualizing comparative social science as a network. Other fields that focus on sets of cases, such as studies of social movements or democratization, might fruitfully adapt this approach. If the argument of this study holds more generally, then in those fields, too, comparison will precede epistemology.

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NOTES

Previous versions were presented at the Social Science History Association meeting in 2010, the Irvine Comparative Sociology Workshop in 2013, and the American Sociological Association Annual Meetings in 2014 and 2015.

1. The initial searches were completed in summer of 2010. Because indexing, particularly for recent publications, can change, I reexamined the searches and sources in fall of 2012. The first full decade in all the databases is the 1970s, so I begin there and then end with the last full decade of the 2000s. Keyword synonyms for *revolution*, such as *uprising*, are not included because the issue is about the self-conscious field of revolution studies rather than all information available about revolutions.

2. In a few instances, the need to consolidate cases into network nodes necessitates putting co-occurring events into conglomerates that are usually considered as one case in the literature, for example, the second civil war and the 1980s coup d'états in Sudan.
3. I do not include explicit reprints of studies, but comparative analyses are often published in both article format and as part of a larger book project. Because the unit of analysis is the study and not the scholar, I include these multiple instances—the logic being that the analysis passed the muster of peer review twice and was allowed as separate publications by different editors.
4. For cases that cover a general period of time, for example, the seventeenth-century Ottoman crisis (Goldstone 1991), onset is set to the first year, for instance, 1600.
5. The best fitting resolution parameter is .75 as Cramer's V is 1.00, showing a perfect correlation between different iterations.
6. The results of quadratic assignment procedures regression, where the strength of a tie (i.e., how many times two cases have been compared) is predicted by homophily, confirms that cases with similar regions, eras, and outcomes are more likely to be compared repeatedly.
7. Regression of popularity on the year of onset also shows no statistically significant relationship.
8. Results available from the author on request.
9. Full numeric descriptions of clusters are available from the author on request.

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