Note: The online appendix, including a glossary, inventory of typologies, and supplementary bibliography, is included at the end of this file.

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Putting Typologies to Work: Concept Formation, Measurement, and Analytic Rigor

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Abstract

Typologies are well-established analytic tools in the social sciences. They can be "put to work" in forming concepts, refining measurement, exploring dimensionality, and organizing explanatory claims. Yet some critics, basing their arguments on what they believe are relevant norms of quantitative measurement, consider typologies old-fashioned and unsophisticated. This critique is methodologically unsound, and research based on typologies can and should proceed according to high standards of rigor and careful measurement. These standards are summarized in guidelines for careful work with typologies, and an illustrative inventory of typologies, as well as a brief glossary, are included online.

Keywords

typology, concept formation, measurement, levels of measurement, scale types, qualitative methods, multimethod research

1. Introduction

Typologies—defined as organized systems of types—are a well-established analytic tool in the social sciences. They make crucial contributions to diverse analytic tasks: forming and refining concepts, drawing out underlying dimensions, creating categories for classification and measurement, and sorting cases.

Older, well-known typologies include Weber's (1978) distinction among traditional, charismatic, and rational authority; Dahl's (1971) analysis of polyarchies, competitive oligarchies, inclusive hegemonies, and closed hegemonies; Krasner's (1977) discussion of makers, breakers, and takers in the formation of international regimes; and Carmines and Stimson's (1980) distinctions among nonissue, easy-issue, hard-issue, and constrained-issue voters.

In current research, typologies are used in diverse substantive areas. This includes work focused on union–government interactions (Murillo 2000), state responses to women's movements (Mazur 2001), national political economies (Hall and Soskice 2001), postcommunist regimes (McFaul 2002), social policy (Mares 2003), time horizons in patterns of causation (Pierson 2003), transnational coalitions (Tarrow 2005), state economic intervention (Levy 2006), political mobilization (Dalton 2006), national unification (Ziblatt 2006), personalistic dictatorships (Fish 2007), contentious politics (Tilly and Tarrow 2007), vote buying (Nichter 2008), and types of nation-states (Miller 2009). An illustrative list of over one hundred typologies, covering nine subfields of political science, is presented in the appendix.[1]

This article develops two arguments, the first focused on skepticism about typologies. Some critics, who base their position on what they understand to be the norms of quantitative measurement, consider typologies—and the categorical variables from which they are constructed—to be old-fashioned and unsophisticated. We show that this critique is methodologically unsound and is based on a misleading comparison of qualitative and quantitative approaches. This critique underestimates the challenges of conceptualization and measurement in quantitative work and fails to recognize that quantitative analysis is built in part on qualitative foundations. The critique also fails to consider the potential rigor and conceptual power of qualitative analysis and likewise does not acknowledge that typologies can provide new insight into underlying dimensions, thereby strengthening both quantitative and qualitative research.

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A second set of arguments examines the contribution of typologies to rigorous concept formation and measurement. We offer a basic template for careful work with typologies that can advance such rigor, drawing on the ideas about categorical variables and measurement presented in the first part of the article. Our discussion examines errors and missed opportunities that can arise if the template is not followed and explores how typologies can be put to work in refining concepts and measurement and also in organizing explanatory claims and causal inference. The conclusion presents guidelines for creating and refining typologies that are both conceptually innovative and rigorous.

Before we proceed with the discussion, key distinctions must be underscored.

a. Conceptual typologies. Given the concern here with conceptualization and measurement, this article focuses on what may be called conceptual typologies.[2] These typologies explicate the meaning of a concept by mapping out its dimensions, which correspond to the rows and columns in the typology. The cell types are defined by their position vis-à-vis the rows and columns.[3]

b. Descriptive versus explanatory typologies. Conceptual typologies may also be called *descriptive* typologies, given that the dimensions and cell types serve to identify and describe the phenomena under analysis. These may be contrasted with *explanatory* typologies (Elman 2005; Bennett and Elman 2006), in which the cell types are the outcomes to be explained and the rows and columns are the explanatory variables.

c. Multidimensional versus unidimensional typologies. Our central focus is on *multidimensional* typologies, which deliberately capture multiple dimensions and are constructed by cross-tabulating two or more variables. *Unidimensional* typologies organized around a single variable—for example, Krasner's makers, breakers, and takers in regime formation noted above—also receive some attention, and many norms for careful work with typologies apply to both.

An online glossary (available at http://prq.sagepub.com/supplemental/) presents definitions of key terms.

2. Criticisms of Categorical Variables and Typologies

Typologies, and the categorical variables on which they are often constructed, have been subject to sharp criticism. Both these critiques and our response hinge in part on issues of scale types and definitions of measurement. We therefore review and extend prior treatments of these topics.

2.1. Point of Departure: Scale Types and Measurement

A basic point of reference here is the familiar framework of nominal, ordinal, interval, and ratio scale types.[4] We add two further types: the *partial order*, which has order among some but not all the categories;[5] and the *absolute* scale, which is an enumeration of the individuals or entities in a given category—for example, the number of voters in different electoral districts.[6] These types are summarized in Table 1.

Table 1. Scale Types: Basic Structure and Areas of Dispute

Scale type	1. Level of information	2. Permissible statistics[a]	3. Corresponding definition of measurement[a]
Nominal	• Equal/not equal[b]	• Cell count, mode, contingency correlation	Assignment of numerals based on rules
Partial Order	• Order among some but not all categories	• Cell count, mode, contingency correlation	
Ordinal	• Order among all categories	• Median, percentiles	
Interval	• Equal intervals	• Mean, standard deviation, correlation and regression	Measurement as quantification
Ratio	• Meaningful zero		
Absolute	• Numerical count of entities in a given category	• Mean, standard deviation, correlation, some forms of regression[c]	

a. The distinctions among scale types presented in columns 2 and 3 are disputed, as discussed in the text. For present purposes, the distinctions presented in column 1 are not treated as problematic. The distinctions in column 1 may be formulated in terms of mathematical group structure, as discussed in note 7.
b. The categories are thus collectively exhaustive and mutually exclusive.
c. Because an absolute scale consists entirely of integers (i.e., whole numbers), according to a strict understanding of permissible statistics only certain forms of regression analysis are appropriate.

The controversy over scale types is focused on four alternative criteria for evaluating their desirability and utility. First, traditional distinctions between lower and higher levels of measurement are anchored in the idea that the latter contain a higher *level of information*, which is formalized in the idea of mathematical group structure.[7] This perspective provides valuable distinctions, yet closer examination reveals that the relationship between scale types is complex. For example, the meaning of higher levels of measurement depends on lower levels, as we will show below.

A second criterion is *permissible statistics*—that is, the statistical procedures that can and should be employed with each scale type. Higher levels of measurement were traditionally seen as amenable to a greater range of procedures, which led many scholars to consider

categorical variables less useful. However, some of these earlier distinctions have broken down, and complex forms of statistical analysis are now routinely applied to nominal scales.

Third, alternative *definitions of measurement* are crucial in evaluating scale types. A classic and highly influential definition, dating back at least to the physicist N. R. Campbell (1920), treats measurement as the quantification of physical properties. Measurement in this sense can be achieved with a yardstick (Michell 1999, 121). In this framework, "measurement" corresponds to the standard understanding of a ratio scale, thus privileging order, *plus* a unit of measurement, *plus* a real zero.

Alternatively, measurement has been defined as "the assignment of numerals to objects or events according to rules."[8] Such assignment corresponds to standard practice with higher levels of measurement, where scores are expressed numerically and provide a true "metric." According to this alternative definition, if each category in a nominal or ordinal scale is designated with a numeral, this also constitutes measurement. In typologies, of course, the categories are routinely designated not with numerals, but with terms that evoke relevant concepts. In our view, the idea of measurement should not be reified, and this naming of types could also be considered measurement. The real issue is whether the differentiation along dimensions or among cases serves the goals of the researcher. We are convinced that typologies do serve these goals.

A fourth criterion concerns the cut point between qualitative and quantitative measurement. Some analysts (Vogt 2005, 256) consider a scale qualitative if it is organized at a nominal level and quantitative if the level is ordinal or higher—thereby privileging whether order is present. By contrast, others (e.g., Porkess 1991, 179; Young 1981, 357; Duncan 1984, 126, 135-36) treat ordinal versus interval as the key distinction, thus focusing instead on whether categories, as opposed to a unit of measurement, are employed. An even more demanding cut point—strongly embraced by some social scientists—derives from the tradition of Campbell and requires both a unit of measurement *and* a real zero.

As we will see, contention over these criteria is central to debates on typologies.

2.2. The Critiques

Both some recent commentaries, and an older generation of methodologists, have sharply criticized categorical variables and typologies.[9] Yet many of these critiques reflect an outdated understanding of scale types.

Gill's (2006, 334) mathematics textbook for political scientists states that nominal scales have the least "desirability" among levels of measurement. Similarly, the *Encyclopedia of Measurement and Statistics* (Salkind 2007, 826, 683) adopts the fairly standard line that the ratio level of measurement "provides the richest information about the traits it measures"; among the scale types, "nominal is considered the 'weakest' or least precise level of measurement . . . and one should use a more precise level of measurement whenever possible." Teghtsoonian (2002, 15106) asserts that "contemporary theorists find the nominal scale of little interest because it imposes no ordering on the measured entities."

Some of the earlier critiques by prominent scholars are exceptionally harsh. In his seminal article, Stevens (1946, 679) argues that nominal scales are "primitive." Blalock (1982, 109-10) maintains that "one of the most important roadblocks to successful conceptualization in the social sciences has been our tendency to . . . rely very heavily on categorical data and discussions of named categories." He argues that scholars who work with nominal scales suffer from "conceptual laziness," and he expresses dismay that so much attention has been given to "categorical data and classificatory schemes." Young (1981, 357) is similarly harsh in the opening sentence of his presidential address for the Psychometric Society, published as the lead article in *Psychometrika*: "Perhaps one of the main impediments to rapid progress in the development of the social, behavioral, and biological sciences is the omnipresence of qualitative data," by which he means data involving nominal or ordinal scales. He thus groups nominal and ordinal together.

Duncan (1984, 126), a pioneer in the development of path analysis and structural equation modeling, likewise rejects nominal and ordinal scales on the grounds that they are not a form of measurement, given that "the purpose of measurement is to quantify" and the goal is to establish "degrees." He considers the argument that classifications are in any sense a type of measurement to be "obfuscatory" (135). Furthermore, Duncan argues that with many presumably ordinal scales, the demonstration of order is questionable, and if one applies a strong standard, there are many fewer meaningful ordinal scales than is often believed (136).

Skepticism about nominal scales also derives from the concern that they obscure multidimensionality and fail to produce unidimensional measures, which are seen as critical to good research. Blalock (1982, 109) states that a key obstacle to adequate conceptualization is the failure to "grapple with the assessment of dimensionality" and the overreliance on categorical scales, often identified simply by proper names. Shively (1980, 31; also Shively 2007, chap. 3) emphasizes that terms and concepts from ordinary language, which are routinely used in designating the categories in nominal scales, are especially likely to hide multidimensionality. Jackman (1985, 169) similarly states that the variables employed in research "are supposed to be unidimensional"; and Bollen (1980) and Bollen and Jackman (1985) likewise underscore the importance of arriving at unidimensionality, arguing

that if multiple dimensions are hidden, then measurement is inadequate and causal inferences are misleading.

Some critics of categorical variables specifically criticize typologies as well. Duncan (1984, 136), for instance, laments sociologists' "addiction to typology." In their widely noted book, King, Keohane, and Verba (1994, 48, emphasis original) are less emphatic, though still dubious: "[T]ypologies, frameworks, and all manner of classifications, are useful as temporary devices when we are collecting data." However, these authors "encourage researchers *not* to organize their data this way."

3. A Misleading Comparison: Rebalancing the Discussion

These critiques of typologies and lower levels of measurement arise from a misleading comparison of qualitative and quantitative methods and also from a serious misunderstanding of measurement. The discussion urgently needs to be rebalanced, based on a better grasp of the limitations of quantitative approaches to measurement, the strengths of qualitative approaches, and the fact that quantitative reasoning about measurement in part rests on qualitative foundations.

3.1. The Achilles' Heel of Quantitative Measurement: Meeting the Assumptions

Interval and ratio scales are often considered more valuable because, in principle, they contain more information than nominal and ordinal scales. They are also seen as more amenable to achieving unidimensional measurement. However, these advantages depend on complex assumptions about the empirical relationships present in the data, assumptions that may not be valid for a given application. Political and social attributes are not always quantifiable, and there is often the temptation to treat data as if they contain information that may not be there. Of course, categorical data also depend on assumptions, but because these "lower" levels of measurement posit less complex empirical relationships (Table 1), the assumptions are simpler.

Psychometricians have devoted great attention to the problem of assumptions. Michell (2008, 10) suggests that in his field, "the central hypothesis (that psychological attributes are quantitative) is accepted as true in the absence of supporting evidence. . . . Psychometricians claim to know something that they do not know and have erected barriers preserving their ignorance. This is pathological science." Barrett (2008, 79) points out that, paradoxically, maintaining the pretense of a higher level of measurement can distort—rather than enhance—the information about the real world contained in data at a lower level of measurement.

These questions about assumptions are highly salient for political science, given both the wide influence of psychometrics in political research (Poole 2008) and the common presumption that political phenomena are indeed quantifiable.

Such questions about assumptions arise, for example, in discussions of structural equation modeling with latent variables (SEM-LV)—an analytic tool intended to establish higher levels of measurement and remove measurement error. This technique can build on ordinal or dichotomous nominal data to estimate unobserved quantitative variables.

Unfortunately, given the large number of untestable or hard-to-test assumptions that go into SEM-LV, many scholars question its contribution.[10] These include assumptions about the distributions of unobservable variables, the number and dimensionality of such variables, the structure of measurement relations among the observable and unobservable variables, and the causal relations among the unobservable variables.

Item response theory (IRT) has emerged as an alternative to SEM-LV for creating indicators at a higher level of measurement and removing measurement error. Notwithstanding differences in emphasis and procedure, the two families of techniques have fundamentally similar assumptions (Takane and de Leeuw 1987; Reckase 1997; Treier and Jackman 2008, 205-6). Hence, IRT likewise raises concerns about assumptions in quantitative measurement.

In sum, quantitative scholars' hopes and expectations about these tools may surpass actual accomplishments. These researchers face major challenges in meeting the critiques of quantitative measurement advanced by scholars like Michell.

3.2. Higher Levels of Measurement Rest in Part on a Foundation of Nominal Scales

Some critiques of nominal scales imply that scholars who work with higher-level scales escape the confines of this lowest level of measurement. This is incorrect. In their effort to give conceptual meaning to higher levels of measurement, scholars routinely build on nominal dichotomies.

Establishing an absolute scale requires a nominal dichotomy to identify the specific entities counted by the scale. As noted above, the need for this dichotomy is illustrated by the challenge of counting the number of voters in different electoral districts. Performing such a count depends on a dichotomous understanding of which voters are in each district and which are not, and also on a dichotomy that identifies the subset of people who count as voters. This points to a pivotal observation: working with the *highest* level of measurement requires

the *lowest* level of measurement. Nominal scales are crucial here.

In seeking to establish partial orders—as well as ordinal, interval, and ratio scales—scholars sometimes simply create an indicator without careful conceptualization, and then proceed to treat the indicator as if it satisfied the corresponding level of measurement. Yet giving the indicator conceptual content requires establishing what it means for the phenomenon being measured to be "absent"; this establishes what Goertz (2006, 30-35) calls the negative pole of the concept (also see Sartori 1970; Collier and Gerring 2009). This stands in contrast to being "present," and as the analyst works with the entire scale, this dichotomy of present–absent provides a foundation for reasoning about "More of what?" Obviously, present–absent is a nominal dichotomy, and we thus see the interplay between the full range of values on the scale and this simple nominal distinction.

As an example, take Sniderman's (1981) ordinal measure of government support, in which the lowest category is "disaffection." It is essential to establish here whether disaffection is simply the absence of government support, or if it includes active opposition—which is very different. Again, a dichotomous understanding of the presence or absence of support is essential to addressing this issue.

Of course, scholars do sometimes follow poor measurement practices and construct "indicators" (i.e., specific procedures for scoring cases) without carrying out this conceptual work. They proceed to treat the resulting variable as if it were at one or another of these levels of measurement. Yet indicators should be constructed to measure *something*, and careful conceptual work is essential to establishing what that something is. Nominal scales are indispensable to the reasoning required, and this key contribution is another reason why it is inappropriate to denigrate nominal scales.

3.3. Revised Norms for "Permissible Statistics": Nominal Scales in Quantitative Analysis

A significant source of concern about nominal scales had been their presumed incompatibility with regression analysis and, more broadly, the conviction that fewer statistical tools are appropriate for nominal/typological variables than for higher-level variables.

However, this norm has in important respects been superseded. Nominal scales are now routinely used in regression analysis as independent variables—that is, with the use of dummy variables. Under the rubric of "categorical data analysis" (see, e.g., Agresti 2002), a broad set of tools for treating such data as the dependent variable have been developed. Among these tools, logit and probit models are particularly well known. Often these nominal scales are simple dichotomies, but multinomial scales (i.e., multicategory nominal scales) are also used. In political science and sociology, a count of articles in leading journals shows that logic and probit were little used in the 1970s and had became widespread by the 1990s—a trend that has subsequently continued.

In working with logit, probit, and dummy variables, scholars in practice often do not worry about dimensionality. When dichotomies are entered into regression analysis (e.g., party identifiers vs. independents), the researcher routinely does *not* do a scaling analysis to test whether the dichotomy taps an underlying dimension. This seems perfectly reasonable. Even though party identification is a multifaceted and multidimensional concept, it is still valuable to learn if age cohorts differ in their party identification. In this context, the quest for unidimensionality may well be set aside.

Other tools for quantitative causal inference also rely on nominal variables, and, here again, attention to dimensionality is often not a central concern. Matching methods, for example, attempt to estimate the causal effect in observational data of two alternative "treatments" by comparing cases drawn from two groups that are as similar as possible on a set of conditioning variables (Rubin 2006). These techniques essentially require that the causal variable of interest be categorical; if it is continuous, the definition of treatment groups is ambiguous and some sort of threshold or cut point (i.e., dichotomization) must be imposed.

This use of categorical independent variables echoes the best-practices design for causal inference, the randomized experiment. While experiments can use randomization to assign different values of a treatment measured as a continuous variable, by far the more common approach in the social sciences is to employ discrete treatments based on a categorical variable. As with matching methods and the models discussed in the previous paragraph, discussions of the dimensionality of treatment assignments in experimental designs are rarely at the center of attention.

3.4. Placing Multidimensionality in Perspective

An earlier criticism of typologies and nominal scales was that they fail to address multidimensionality. Skeptics charged that, lurking behind what might appear to be clear concepts and compelling classifications, one too often finds multiple dimensions and poor measurement. These analysts saw higher levels of measurement as far more capable of achieving unidimensionality.

This critique needs to be rebalanced. First, as shown in sections 4 to 7 below, the construction and refinement of typologies has made sophisticated contributions to

addressing multidimensionality. This is "conceptual work," and it should become clear below that carefully crafted typologies contribute decisively to this task. Hence, far from obstructing the careful treatment of dimensions, typologies can play a critical role in that endeavor.

Second, dealing with dimensions in quantitative research often proves more complicated, ambiguous, and inconclusive than was previously recognized. Jackman's mandate (noted above) that "variables are supposed to be unidimensional" represents an admirable goal in many forms of analysis, yet it routinely is not achieved. This is partly because, as just discussed in section 3.1, some of the most promising tools for extracting dimensions have fallen well short of their promise.

Third, unidimensionality is not a well-defined "end state" in research. It is better understood as involving a series of iterations and approximations that emerge as research proceeds. Consider standard measures of political democracy. These may include (1) free and fair elections, (2) respect for political rights and civil liberties, (3) universal suffrage, and (4) whether elected leaders to a reasonable degree possess effective power to govern (D. Collier and Levitsky 1997, 433-34). Some scholars combine these attributes by creating simple additive measures of democracy, and others use a spectrum of alternative tools.

Yet each of these component indicators can hide multidimensionality. For example, the concept of civil liberties is certainly multidimensional, including freedom of association, the right to habeas corpus, and freedom of expression—attributes that do not necessarily vary together. Freedom of expression is multidimensional in its own right, given that it includes freedom of the press, freedom of broadcast media, uncensored use of the Internet, and other aspects of freedom to express political views. Each of these components, in turn, is certainly multidimensional as well. Furthermore, an indicator that appears to yield unidimensional measurement for a given set of cases may not do so with additional cases, and there may also be heterogeneity vis-à-vis subsets of cases. These problems involve basic ideas about the contextual specificity of measurement validity, which have received substantial acceptance in psychology.[11]

The issue, therefore, is not that quantitative analysis arrives successfully at unidimensionality and qualitative analysis has great difficulty in doing so. Moving beyond multidimensionality is an issue at all levels of measurement, and for higher levels it is not necessarily resolved by complex scaling techniques. The challenge for both qualitative and quantitative measurement is to find the scope of comparison and level of aggregation—that is, the degree to which indicators are broken down into their constituent elements—best suited to the analytic goals of the study.

4. The Template: Concept Formation and the Structure of Typologies

We now analyze the role of typologies in concept formation and develop a template for rigorous construction of typologies. Our concern is with multidimensional conceptual typologies, yet many elements of the template are also relevant to unidimensional and explanatory typologies.

4.1. Concept Formation

Conceptual typologies make a fundamental contribution to concept formation in both qualitative and quantitative research. Developing rigorous and useful concepts entails four interconnected goals:[12] (1) clarifying and refining their meaning, (2) establishing an informative and productive connection between these meanings and the terms used to designate them, (3) situating the concepts within their semantic field, that is, the constellation of related concepts and terms, and (4) identifying and refining the hierarchical relations among concepts, involving *kind hierarchies*.[13] Thinking in terms of kind hierarchies brings issues of conceptual structure into focus, addresses challenges such as conceptual stretching, and productively organizes our thinking as we work with established concepts and seek to create new ones.

A key point must be underscored: The cell types in a conceptual typology are related to the overarching concept through a kind hierarchy. Understanding this hierarchy helps to answer the following question: What establishes the meaning of the cell types, that is, of the concept that corresponds to each cell? The answer is twofold. (1) Each cell type is indeed "a kind of" in relation to the overarching concept around which the typology is organized, and (2) the categories that establish the row and column variables provide the core defining attributes of the cell type.

4.2. The Basic Template

Building on these ideas, we now propose a template for constructing multidimensional typologies. We illustrate our framework with Nichter's (2008, 20) typology of the allocation of rewards in electoral mobilization (Table 2), which forms part of his larger analysis of clientelism. While our template might appear straightforward, the literature in fact lacks a clear, didactic presentation of the building blocks in the template. Moreover, scholars too often limit the value of their typologies—and sometimes make serious mistakes—by failing to follow this template.

The building blocks of typologies may be understood as follows:

Table 2. Targeting Rewards in Electoral Mobilization

		Party preference of recipient vis-à-vis party offering reward	
		Favors party	Indifferent or favors opposition
Reward recipient inclined to vote or not vote	Vote	Rewarding loyalists	Vote buying
	Not vote	Turnout buying	Double persuasion

(Nichter 2008)

a. *Overarching concept:* This is the concept measured by the typology. In Nichter, the overarching concept is the targeting of rewards. This concept should be made explicit and should be displayed as the title in the diagrammatic presentation of the typology.[14]
b. *Row and column variables:* The overarching concept is disaggregated into two or more dimensions, and the categories of these dimensions establish the rows and columns in the typology. These dimensions capture the salient elements of variation in the concept, so the plausibility and coherence of the dimensions vis-à-vis the overarching concept are crucial. In Nichter, the row variable is whether the prospective recipient of the reward is inclined to vote; its component categories define the rows. The column variable is whether the prospective recipient favors the party offering the reward. It merits note that row and column variables in a typology need not be limited to nominal or ordinal scales, but may also be interval or ratio.
c. *Matrix:* Cross-tabulation of the component categories of these dimensions creates a matrix, such as the familiar 2 × 2 array employed by Nichter. The challenge of creating a matrix can push scholars to better organize the typology, tighten its coherence, and think through relations among different components.

In presenting typologies with three or more dimensions, scholars adopt diverse formats:

i. The familiar 2 × 2 matrix may simply be presented twice, once for each of the two subgroups of cases that correspond to the third dimension—as in Leonard (1982, 32-33) on decentralization and Vasquez (1993, 320) on war.
ii. One of the categories in a row and/or column variable may be further differentiated into subcategories—as in R. B. Collier and Collier (1991, 504) on incorporation periods.
iii. One category in a row and/or column variable may be further differentiated with an interval or ratio scale—as in O'Donnell and Schmitter (1986, 13) on democratization.
iv. Additional dimensions can be introduced through a branching tree diagram—as in Gunther and Diamond (2003, 8) on political parties.
v. The additional dimension may be represented by a cube, with the cell types placed at different locations in the cube—as in Linz (1975, 278) on authoritarianism.

d. *Cell types:* These are the concepts and associated terms located in the cells. The cell types are "a kind of" in relation to the overarching concept measured by the typology. The conceptual meaning of these types derives from their position in relation to the row and column variables, which should provide consistent criteria for establishing the types. In Nichter's typology, the terms in each cell nicely capture the constellation of attributes defined by the conjuncture of each row and column variable: rewarding loyalists, vote buying, turnout buying, and double persuasion.

Even when the typology is based on interval or ratio variables, scholars may identify cell types. These may be *polar* types located in the corners of the matrix, or *intermediate* types.[15]

Sometimes the analyst does not formulate a concept that corresponds to the cell types; rather, the names of the categories in the corresponding row and column variables are simply repeated in the cell. For example, in a typology that cross-tabulates governmental capacity and regime type, the terms in the cells are "high-capacity democratic," and so on. Here, the typology is valuable, but this potential further step in concept formation is not taken.[16]

5. Errors and Missed Opportunities

This template, combined with the clarity of the Nichter example, might lead readers to conclude that constructing conceptual typologies is easy. Yet failing to follow the template can lead to errors as well as to missed opportunities for improving conceptualization and measurement.

Some errors are simple—such as confusing conceptual typologies with explanatory typologies, a problem found in Tiryakian and Nevitte's (1985, 57) analysis of nationalism. Though their stated goal is to conceptualize nationalism, their discussion suggests that this is partly a conceptual typology of nationalism, partly a conceptual

typology of different combinations of nationalism and modernity, and partly an explanatory typology concerned with the causal relationship between the two concepts. Their concern with causal relations is clear from the beginning of the article, where they maintain that "cases can be cited to support the contention that nationalism is a *consequence* of modernity, but it can also be argued that nationalism is an antecedent *prerequisite* of modernity."

Another straightforward error—confusing typologies with numerical cross-tabulations—has led to mistaken skepticism about typologies as an analytic tool. In one of the most widely used undergraduate methodology textbooks in the social sciences today, Babbie (2010, 183-85) offers a strong warning about typologies. Yet he focuses on potential error in calculating and reading the percentages in a numerical cross-tabulation. Far from pointing to a major concern about typologies, his critique reflects a failure to distinguish clearly between typologies and numerical cross-tabulations.

The use of nonequivalent criteria in formulating the cell types is also problematic. This error is found in the initial version of Gabriel Almond's (1956) famous typology of political systems, which Kalleberg (1966, 73) criticized as "confused." Almond (1956, 392-93) distinguished among "Anglo-American (including some members of the Commonwealth), the Continental European (exclusive of the Scandinavian and Low Countries, which combined some of the features of the Continental European and the Anglo-American), the preindustrial, or partially industrial, political systems outside the European-American area, and the totalitarian political systems." These types are based on different criteria. Almond's typology was subsequently reformulated, but the revised version also raised concerns.[17]

In some instances, authors are refreshingly explicit about the problem of establishing cell types and analytic equivalence among them. Hall and Soskice's (2001, 8-21) typology of European political economies categorizes countries as liberal market, coordinated market, and Mediterranean. However, for the third type they comment with great caution that these cases "show some signs of institutional clustering" and that they are "sometimes described as Mediterranean" (21).[18] Similarly, Carmines and Stimson (1980, n5, p. 85), in presenting their typology of issue orientation and vote choice, express misgivings about their category of "constrained issue voters," suggesting that the label "constrained" may have implications well beyond their intended meaning.

Other studies suffer from multiple problems. Tiryakian and Nevitte's (1985) conceptualization of nationalism, discussed above, shows serious confusion in the organization and presentation of the overarching concept, the variables that establish the types, and the names for the types. It also lacks a matrix to help organize and clarify the types and dimensions.

Problems of organization and presentation also arise in Carmines and Stimson's (1980, 85, 87) outstanding study of issue voting. They make it clear that a typology is central to their analysis. Yet despite the care with which the overall argument is developed, the typology is not presented as an explicit matrix; the cell types are confusingly introduced in a series of steps throughout the article, rather than all together; it takes some effort to identify the dimensions from which the cell types are constructed; and although the overarching concept can be inferred fairly easily, the name for this concept should have been identified in the title of an explicit matrix. Overall, it takes some digging to uncover the building blocks in their typology.

6. Putting Typologies to Work 1: Conceptualization and Measurement

The goal of establishing the basic template for typologies—as well as discussing errors and missed opportunities—is to encourage scholars to be both more rigorous and more creative in working with concepts. In that spirit, we now consider two fundamental ways in which typologies can be put to work. Section 6 addresses conceptualization and measurement; section 7 focuses on analysis of causes and effects.

6.1. Organizing Theory and Concepts

Scholars use typologies to introduce conceptual and theoretical innovations, sometimes drawing together multiple lines of investigation or traditions of analysis.

For example, the typology of "goods" in public choice theory synthesizes a complex tradition of analysis. Goods are understood here as any objects or services that satisfy a human need or desire. Samuelson's (1954) classic article introduced the concept of "public good," and later scholars have extended his ideas, adding new types such as the "club good" (Musgrave 1983). With slight variations in terminology (see Mankiw 1998, 221; as opposed to Ostrom, Gardner, and Walker 1994, 7), the idea of a good is now routinely conceptualized in two dimensions: *rivalrous*, according to whether consumption by one individual precludes simultaneous consumption by another individual; and *excludable*, according to whether the good can be extended selectively to some individuals, but not others. Cross-tabulating these two dimensions yields public, private, club, and common goods (the last also known as common-pool resources).

The joining of two analytic traditions is found in Kagan's (2001, 10) typology of "adversarial legalism." He draws together (1) the idea of an adversarial

legal system, which has long been used to characterize Anglo-American modes of legal adjudication, and (2) the traditional distinction between legalistic and informal modes of governance. He integrates these two theoretical approaches in a typology that posits four modes of policy implementation–dispute resolution: adversarial legalism, bureaucratic legalism, negotiation or mediation, and expert or political judgment.

Schmitter's (1974) analysis of interest representation bridges alternative analytic traditions while also illustrating the ongoing process of refining a typology. He connects what was then a new debate on the concept of corporatism to ongoing discussions of pluralism as well as prior understandings of monism, anarchism, and syndicalism. He shows how corporatism should be taken seriously as a specific type of interest representation that can be analyzed in a shared framework vis-à-vis these other types. Schmitter later introduces a further refinement, making it clear that the overarching concept in a typology is not necessarily static. Based on his recognition that he is conceptualizing not just a process of *representation* but a two-way interaction between groups and the state, he shifts the overarching concept from interest "representation" to interest "intermediation" (Schmitter, 1977, 35n1).[19]

6.2. Conceptualizing and Measuring Change

Ongoing scholarly concern with mapping political transformations and empirical change is an important source of innovation in typologies. An example is the evolving conceptualization of party systems that occurred in part as a response to the historical changes in their bases of financial support. Duverger (1954, 63-64) initially proposes the influential distinction between "mass" and "cadre" parties, which are distinguished—among other criteria—on the basis of financial support from a broad base of relatively modest contributions, versus reliance on a small set of wealthy individual contributors. Subsequently, Kirchheimer (1966, 184-95) observes that in the 1960s, many European parties moved away from the organizational pattern of the mass party. They are replaced by "catch-all" parties that cultivate heterogeneous financial bases. More recently, Katz and Mair (1995, 15-16) conclude that parties have begun to turn away from financial reliance on interest groups and private individuals (whether wealthy or not), developing interparty collaboration to obtain financing directly from the state—thereby creating the "cartel" party.

The influence of political change can also be reflected in choices about dimensions in typologies. For instance, Dahl (1971) maps out historical paths to modern polyarchy; hence, his dimension of inclusiveness centrally involves the suffrage, and given the historical depth of his analysis this dimension ranges from restrictive to universal. By contrast, Coppedge and Reinicke (1990, 55-56), focusing on data for 1985, declare polyarchy unidimensional and argue that Dahl's dimension of inclusiveness can be dropped. As of that year, the movement to universal suffrage was nearly complete and was no longer a significant axis of differentiation among cases.[20]

6.3. Free-Floating Typologies and Multiple Dimensions

Some of the most creative typologies may appear unidimensional, yet this may mask multiple dimensions and/or the dimensions may be ambiguous. These "free floating" typologies lack explicit anchoring in dimensional thinking. Such typologies may often be refined by teasing out the underlying dimensions.[21]

For example, Hirschman's (1970) "exit, voice, and loyalty" has provided a compelling framework for analyzing responses to decline in different kinds of organizations—a topic inadequately conceptualized in prior economic theorizing. Yet as Hirschman (1981, 212) points out, these are not mutually exclusive categories. Voice, in the sense of protest or expression of dissatisfaction, can accompany either exit or loyalty. Hirschman's typology can readily be modified by creating two dimensions: (1) exit versus loyalty and (2) exercise versus nonexercise of voice. This revised typology would also have mutually exclusive categories, thereby responding to a standard norm for scales and typologies and making it possible to classify cases in a more revealing way.

Another example is Evans's (1995) conceptualization of alternative state roles in industrial transformation. Evans presents what appears to be a nominal scale with four categories: midwifery, demiurge, husbandry, and custodian. On closer examination, however, two dimensions are present: (1) key state actors may see entrepreneurs' ability to contribute to development as malleable or fixed, and (2) the role of the state vis-à-vis entrepreneurs may be supportive or transformative. Evans's four original types fit nicely in the cells of this 2 × 2 typology, and the result is a more powerful conceptualization of the state's role.

6.4. Typologies Generate Scales at Different Levels of Measurement

Typologies also refine measurement by creating categorical variables that are distinct scale types.

Nominal scale. Nichter's (2008) analysis of targeting rewards yields the cell types discussed above: rewarding loyalists, turnout buying, vote buying, and double persuasion. These categories are collectively exhaustive and mutually exclusive, but not ordered; they form a nominal scale.

Partial order. In Dahl's (1971, chap. 1) 2 × 2 typology of political regimes, there is unambiguous order between "polyarchy" and the other three types, and between "closed hegemony" and the other three types. Yet between the two intermediate types—competitive oligarchy and inclusive hegemony—there is no inherent order, and Dahl's categories are a partial order (see again Table 1).

Ordinal scale. In their analysis of issue voting, Aldrich, Sullivan, and Borgida (1989, 136) tabulate (1) small- versus large-issue differences among candidates against (2) low- versus high-salience and accessibility of the issues. One cell corresponds to a low effect, while a second cell corresponds to a high effect of opposing issues being voted on. The other two cells are given the same value: "low to some effect." A three-category ordinal scale is thereby created.

7. Putting Typologies to Work II: Causes and Effects

Typologies likewise contribute to formulating and evaluating explanatory claims.

7.1. Conceptual Typologies as Building Blocks in Explanations

Conceptual typologies routinely constitute the independent, intervening, and dependent variables in explanations. Political scientists take it for granted that standard quantitative variables play this role, and it is essential to see that conceptual typologies do so as well. Conceptual typologies do *not* thereby become explanatory typologies. Rather, they map out variation in the outcomes being explained and/or in the explanation of concern, and in contrast to an explanatory typology, the outcomes and the explanation are not placed in the same matrix.

The typology as an independent variable is illustrated by Dahl's (1971, chap. 3) analysis of the long-term stability and viability of polyarchies. Here, his types of political regimes define alternative trajectories in the transition toward polyarchy. Moving from closed hegemony to polyarchy by way of competitive oligarchy is seen as most favorable to a polyarchic regime, whereas the paths through inclusive hegemony and from a closed hegemony directly to polyarchy are viewed as "more dangerous" (Dahl 1971, 36).

Typologies serve as the dependent and intervening variables in research on interactions between women's social movements and the state in advanced industrial democracies. Mazur (2001, 21-23) conceptualizes the dependent variable—the state response—on two dimensions: the state's acceptance of women's participation in the policy process and whether the state response coincides with the goals of the movement. Four types of state response emerge in the typology: no response, preemption, cooptation, and dual response. The dual response is of special interest because it constitutes the most complete achievement of the movement's objectives, involving both "descriptive" and "substantive" representation.

A key intervening variable is a typology of "policy agency activities" in the women's movement. These agency activities are analyzed on two dimensions: whether they successfully frame the policy debate in a gendered way and whether the goals of the movement are advocated by the particular agency. Cross-tabulating these dimensions yields four types of agency activities: symbolic, nonfeminist, marginal, and insider. The cell type of insider constitutes the most complete achievement of both advocating the movement's goals and gendering the policy debate (Mazur 2001, 21-22).

7.2. Typologies in Quantitative Research

The introduction of typologies can be a valuable step in causal inference within a quantitative study. A typology can provide the conceptual starting point in a quantitative analysis, as with Nichter's study of the targeting of rewards in electoral competition, discussed above (Table 2). It may also identify a subset of cases on which the researcher wishes to focus, overcome an impasse in a given study, or synthesize the findings. In other instances, researchers use quantitative analysis to assign cases to the cells in a typology.

Delineating a subset of cases. In Vasquez's (1993, 73) quantitative study of war, a typology helps to identify a subset of cases for analysis. He argues that earlier research yielded inconsistent findings because researchers failed to distinguish types of war. He then identifies eight types by cross-tabulating three dimensions: (1) equal versus unequal distribution of national power among belligerent states, (2) limited versus total war, and (3) number of participants. Vasquez uses this typology to focus on a subset of cases, that is, wars of rivalry.

A typology likewise serves to identify a subset of cases in Mutz's (2007) survey experiment on news media and perceived legitimacy of political opposition, in this case involving a four-category treatment. Subjects are shown a recorded political debate in which the content is held constant across treatments, but two factors are varied: the camera's proximity to the speakers (close or moderate) and the civility of the speakers (civil or uncivil). One cell in the resulting 2 × 2 typology, with a close camera and uncivil speakers, is singled out for special causal attention and is conceptualized as "in-your-face" television. The typology thus frames the categorical variable on which the analysis centers.

Overcoming an impasse. Introducing a typology may also help overcome an impasse in quantitative research.

Hibbs's (1987, 69) study of strikes in eleven advanced industrial countries introduces a 2 × 2 matrix at a point where quantitative analysis can be pushed no further. He uses bivariate correlations to demonstrate that increases in the political power of labor-based and left parties are associated with lower levels of strikes in the decades after World War II, and he hypothesizes that the role of public sector allocation serves as an intervening factor. Hibbs argues that as labor-left parties gain political power, the locus of distributional conflict shifts from the marketplace to the arena of elections and public policy, thereby making strikes less relevant for trade unions.

Yet the multicollinearity among his variables is so high that it is not feasible to sort out these causal links, especially given the small number of cases. Hibbs then shifts from bivariate linear correlations to a 2 × 2 matrix that juxtaposes the level of state intervention in the economy and alternative goals of this intervention. For the period up to the 1970s, he analyzes cases that manifest alternative patterns corresponding to three cells in the typology: relatively high levels of strikes directed at firms and enterprises (Canada, United States), high levels of strikes which serve as a form of pressure on the government (France, Italy), and a "withering away of the strike" that accompanies the displacement of conflict into the electoral arena (Denmark, Norway, Sweden). This typology allows him to push the analysis further, notwithstanding the impasse in the quantitative assessment.

Placing cases in cells with probit analysis. Carmines and Stimson's (1980) study formulates a 2 × 2 typology of issue voting: *easy issue voting*, based on a deeply embedded preference on a particular issue; *constrained issue voting*, based on a deeply embedded preference on a second issue that further reinforces the vote choice; *hard issue voting*, based on a complex decision calculus involving interactions and trade-offs among issues; and *nonissue voting*, based more on party identification than on issue preferences. The study tests hypotheses about the relationship between political sophistication and the role of issue preferences in the vote. The authors place respondents in these four cells using probit analysis and then examine the contrasts among the types with regard to political sophistication.

Synthesizing findings. In studying the impact of foreign policy platforms on U.S. presidential candidates' vote share, Aldrich, Sullivan, and Borgida (1989, 136) use a typology to synthesize their findings. They explore which campaign messages resonate with voters—specifically, which campaign issues are (1) "available," in the sense that an opinion or position on a given issue is understood, and (2) "accessible," or perceived as relevant, by voters. Although much of the article employs probit analysis to predict the victory of specific candidates, the authors seek to characterize broader types of elections in their conclusion. To do so, they introduce a 2 × 2 matrix to classify presidential elections according to whether there are small versus large differences in candidates' foreign policy stances and according to the low versus high salience and accessibility of foreign policy issues raised in each election.

Typologies thus contribute to quantitative research in diverse ways.

8. Conclusion

Conceptual typologies and the categorical variables with which they are constructed are valuable analytic tools in political and social science. This article has addressed criticisms that overlook their contributions and has provided a framework for careful work with typologies.

Skepticism about categorical variables and typologies has frequently been expressed by scholars who exaggerate both the strengths of quantitative methods and the weaknesses of qualitative methods. This comparison is too often methodologically unsound, and it distracts researchers from recognizing the contribution of typologies to both qualitative *and* quantitative work. We have sought to strike a more appropriate balance. Regarding limitations of quantitative research, it is harder than some scholars recognize to meet statistical assumptions and establish unidimensionality. Concerning the contributions of qualitative analysis, higher levels of measurement are founded in part on nominal scales, and work with typologies opens a productive avenue for addressing the issue of multidimensionality.

We then offered procedures to help scholars form their own typologies, avoid errors and missed opportunities, and evaluate typologies employed by others. The following guidelines synthesize these procedures.

8.1. Guidelines for Working With Typologies

i. *Creativity and rigor:* The use of typologies facilitates both innovative concept formation (sections 4.1, 6.1-6.3) and careful work with concepts and measurement (4.2, 5.0, 6.4, and passim). There need not be a trade-off between creativity and rigor.
ii. *Kind hierarchy:* Careful work with typologies contributes to identifying and refining the hierarchical structure of concepts (4.1).
iii. *Overarching concept:* The overarching concept is the overall idea measured by the typology (4.1, 4.2.a). This concept should be in the title of the typology. Simply naming the two or more constitutive dimensions in the title is an inadequate substitute (4.2.a, note 17). In an evolving area of

research, the overarching concept is not necessarily fixed but may change as frameworks and theory change and as the analyst gains new insight (6.1). By creating an overarching concept that brings together previously established concepts and traditions of analysis, scholars can introduce useful conceptual innovation (6.1).

iv. *Dimensions:* These are component attributes of the overarching concept. They may be categorical variables or continuous variables (4.2.b).
v. *The matrix:* Cross-tabulation of row and column variables that each consist of two categories yields the familiar 2 × 2 matrix; more categories for each dimension will produce a greater number of cells, although the resulting typology may still have only two dimensions. The title of the matrix should be the overarching concept. The names of the variables should be placed so that they directly label the horizontal and vertical dimensions, and the category names should label the specific rows and columns (4.2.c). Scholars fail to follow these simple norms more often than one would expect. Careful work with the matrix helps impose discipline on the typology and improves communication with readers.
vi. *Diagramming more than two dimensions:* Some typologies incorporate three or more dimensions, and scholars should be familiar with the different options for diagramming them (4.2.c).
vii. *Cell types:* Cell types are the concepts associated with each cell, along with the terms that identify these concepts. As just noted, in a conceptual typology, the meaning of the cell types is established as follows: (1) The types are "a kind of" in relation to the overarching concept, and (2) the categories that establish the row and column variables provide the defining attributes of each cell type (4.1). One option is to label the cell types by simply repeating the names of the categories for the corresponding row and column variables (4.2.d). When feasible and appropriate, it is valuable to take one step further and to form the concept that distinctively corresponds to the cell type.
viii. *Conceptual versus explanatory typologies:* In a conceptual typology, that is, a descriptive typology that establishes a property space, the cell types are "a kind of" in relation to the overarching concept and the categories of the row and column variables provide their defining attributes. By contrast, in an explanatory typology the cell types are outcomes hypothesized to be explained by the row and column variables (1.0). Of course, conceptual typologies routinely enter into explanatory claims (7.1). Here, the cell types are "descriptive" scores on independent, dependent, and intervening variables, but they do not thereby become explanatory typologies.
ix. *Continuous variables:* Although it is conventional to think of typologies as based on categorical variables, the use of continuous variables is common. With continuous variables, researchers establish the equivalent of cell types, which may be polar types, located in the corners of a two-dimensional space, or intermediate types (4.2.d).
x. *Dimensional thinking:* One criticism of typologies and research based on categorical variables has been that they hide multidimensionality. Yet quantitative variables may also do so, and typologies open new ways for working with multiple dimensions (3.4, 6.3). Exploring dimensions through careful work with the row and column variables is an important step in achieving this objective.
xi. *Free-floating typologies:* Some typologies are not explicitly anchored in dimensional thinking. They may be unidimensional or multidimensional, yet in either case the dimensions are not clear. Such typologies can be strengthened by making explicit—or indeed sometimes discovering—underlying dimensions (6.3).
xii. *Typologies in quantitative research:* Far from being at odds with quantitative work, typologies sometimes play a significant role in statistical studies, and both quantitative and qualitative researchers should be alert to this fact. Typologies may be employed to establish an appropriate set of cases for study, overcome an impasse in statistical analysis, and synthesize conclusions (7.2). Tools such as probit analysis have been used to assign cases to cells in a typology, and both matching designs and experiments utilize categorical variables—which are sometimes conceptualized in terms of typologies (7.2, 3.3).

In sum, typologies are a valuable research tool with diverse applications. They facilitate work that is both conceptually creative and analytically rigorous. These guidelines can enhance this twofold contribution to good research.

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Notes

1. See the appendix at http://prq.sagepub.com/supplemental/.
2. Earlier statements on conceptual typologies include Barton (1955), McKinney (1966), Stinchcombe (1968), and Tiryakian (1968). More recent discussions are offered in a number of sources cited below, as well as in Bailey (1994).
3. A descriptive typology is sometimes called a "property space" (Barton 1955), in that the meaning of the types is defined by their relationship to the "space" established by two or more dimensions.
4. On the wide influence of this framework, see Michell (1997, 360). Some analysts—even in recent publications—have accepted these scale types without commentary; others have criticized them sharply. See, for example, Marks (1974, chap. 7), Borgatta and Bohrnstedt (1980), Duncan (1984, chap. 4), Michell (1990, chap. 1), Narens (2002, 50-60), Teghtsoonian (2002), Shively (1980, 2007), and Gill (2006, 330-34).
5. Davey and Priestley (2002, chap. 1). For a political science discussion of scales located between the nominal and ordinal levels, see Brady and Ansolabehere (1989).
6. An absolute scale should not be confused with the absolute measure of temperature developed by Kelvin, which incorporates a true or absolute zero that corresponds to the absence of heat. In fact, a Kelvin scale is a ratio scale.
7. The mathematical group structure entails the transformations that can be performed on each scale type without distorting the information it contains (Marks 1974, 245-49; Narens 2002, 46-50). With the absolute scale, the information in the scale is lost if any transformation is performed—for example, multiplication by a constant. Nominal scales, by contrast, can be subjected to the widest range of mathematical transformations. Correspondingly, absolute scales are considered the highest level of measurement and nominal scales the lowest.
8. Stevens (1946, 677; 1975, 46-47). Also see Narens (2002, 46-50).
9. Although these critiques have been advanced by quantitative methodologists, many methodologists in the quantitative tradition do not hold these views.
10. Loehlin's (2004, 230-34) book on structural equation modeling with latent variables (SEM-LV) reports some of the sharp critiques. Thus, Freedman (1987a, 102; also see 1987b, e.g., 221) argues that "nobody pays much attention to the assumptions, and the technology tends to overwhelm common sense." Cliff (1983, 116) warns that these models may "become a disaster, a disaster because they seem to encourage one to suspend his normal critical faculties." These concerns parallel the view of prominent political science methodologists who challenge the standard regression practices that underlie SEM-LV (e.g., Achen 2002). Steiger (2001) laments the widespread and uncritical use of SEM by scholars lacking the needed mathematical and statistical background—which we see as one aspect of the misplaced self-confidence of too many quantitative researchers about their own analytic tools.
11. This perspective is summarized in Adcock and Collier (2001, 534-36).
12. This summary draws on diverse sources, among them Sartori (1970, 1984), D. Collier and Mahon (1993), Goertz (2006), and D. Collier and Gerring (2009).
13. Sartori (1970) called this a ladder of "abstraction," and D. Collier and Mahon (1993) sought to clarify the focus by calling it a ladder of "generality." We are convinced that kind hierarchy is a better label (D. Collier and Levitsky 2009), a term that fits the examples discussed in these earlier studies. Also see Goertz (2006, chaps. 2 and 9).
14. Occasionally, the title instead names the variables that are cross-tabulated (e.g., Dahl 1971, 7); in other cases, the matrix simply lacks a title (O'Donnell and Schmitter 1986, 13). It is better to state the overarching concept directly.
15. Dahl's typology of regimes illustrates polar types; Bratton and van de Walle (1997, 78) on regimes in sub-Saharan Africa illustrates intermediate types.
16. This typology is found in Tilly and Tarrow's (2007, 56, figure 3.2) book on contentious politics. A similar form of typology is found in Rogowski's (1989, 8, figure 1.2) analysis of commerce and coalitions. Both are creative and deservedly influential studies, but the typologies could have been pushed one step further.
17. See, for example, Almond and Powell (1966, 308) and Lanning (1974, 372-73n15).
18. In a subsequent, closely linked article, Hall and Gingerich (2009, 459-60) do not refer to a Mediterranean type, but they do comment—again with caution—that "there has been some controversy about whether four of these nations . . . are examples of another distinctive type of capitalism." Hall and Gingerich see these as "ambiguous cases," and they suggest, again with caution, that "there may be systematic differences in the operation of southern, as compared to northern, European economies."
19. See D. Collier and Levitsky (1997) for an extended discussion of innovation in the overarching concept.
20. Subsequently, based on a more fine-grained measure of inclusiveness, Coppedge, Alvarez, and Maldonado (2008) return to the idea of two dimensions.
21. We thank a reviewer for suggesting the expression "free floating" typologies.

References

Achen, Christopher H. 2002. "Toward a New Political Methodology: Microfoundations and ART." *Annual Review of Political Science* 5:423-50.

Adcock, Robert, and David Collier. 2001. "Measurement Validity: A Shared Standard for Qualitative and Quantitative Research." *American Political Science Review* 95: 529-46.

Agresti, Alan. 2002. *Categorical Data Analysis*. 2nd ed. New York: John Wiley.

Aldrich, John H., John L. Sullivan, and Eugene Borgida. 1989. "Foreign Affairs and Issue Voting: Do Presidential Candidates 'Waltz Before a Blind Audience?'" *American Political Science Review* 83:123-41.

Almond, Gabriel A. 1956. "Comparative Political Systems." *Journal of Politics* 18:391-409.

Almond, Gabriel, and G. Bingham Powell, Jr. 1966. *Comparative Politics: A Developmental Approach*. Boston: Little, Brown.

Babbie, Earl. 2010. *The Practice of Social Research*. 12th ed. Belmont, CA: Wadsworth.

Bailey, Kenneth D. 1994. *Typologies and Taxonomies*. Thousand Oaks, CA: SAGE.

Barrett, Paul. 2008. "The Consequence of Sustaining a Pathology: Scientific Stagnation." *Measurement* 6:78-123.

Barton, Allen H. 1955. "The Concept of Property-Space in Social Research." In *The Language of Social Research: A Reader in the Methodology of Social Research*, edited by Paul F. Lazarsfeld and Morris Rosenberg, 40-62. Glencoe, IL: Free Press.

Bennett, A., and C. Elman. 2006. "Qualitative Research: Recent Developments in Case Study Methods." *Annual Review of Political Science* 9:455-76.

Blalock, Hubert. 1982. *Conceptualization and Measurement in the Social Sciences*. Beverly Hills, CA: SAGE.

Bollen, Kenneth A. 1980. "Issues in the Comparative Measurement of Political Democracy." *American Sociological Review* 45:370-90.

Bollen, Kenneth A., and Robert W. Jackman. 1985. "Political Democracy and the Size Distribution of Income." *American Sociological Review* 50:438-57.

Borgatta, Edgar F., and George W. Bohrnstedt. 1980. "Level of Measurement: Once Over Again." *Sociological Methods and Research* 9:47-60.

Brady, Henry E., and Stephen Ansolabehere. 1989. "The Nature of Utility Functions in Mass Publics." *American Political Science Review* 83:143-63.

Bratton, Michael, and Nicholas van de Walle. 1997. *Democratic Experiments in Africa: Regime Transitions in Comparative Perspective.* New York: Cambridge University Press.

Campbell, N. R. 1920. *Physics: The Elements*. New York: Cambridge University Press.

Carmines, Edward G., and James A. Stimson. 1980. "The Two Faces of Issue Voting." *American Political Science Review* 74:78-91.

Cliff, Norman. 1983. "Some Cautions Concerning the Application of Causal Modeling Methods." *Multivariate Behavioral Research* 18:115-26.

Collier, David, Henry E. Brady, and Jason Seawright. 2010. "Sources of Leverage in Causal Inference: Toward an Alternative View of Methodology." In *Rethinking Social Inquiry: Diverse Tools, Shared Standards*, edited by Henry E. Brady and David Collier, 2nd ed. 161-91. Lanham, MD: Rowman & Littlefield.

Collier, David, and John Gerring, eds. 2009. *Concepts and Method in Social Science: The Tradition of Giovanni Sartori*. Oxford, UK: Routledge.

Collier, David, and Steven Levitsky. 1997. "Democracy with Adjectives: Conceptual Innovation in Comparative Research." *World Politics* 49:430-51.

Collier, David, and Steven Levitsky. 2009. "Democracy: Conceptual Hierarchies in Comparative Research." In *Concepts and Method in Social Science: The Tradition of Giovanni Sartori*, edited by David Collier and John Gerring, 269-88. Oxford, UK: Routledge.

Collier, David, and James E. Mahon, Jr. 1993. "Conceptual Stretching Revisited: Adapting Categories in Comparative Analysis." *American Political Science Review* 87:845-55.

Collier, Ruth Berins, and David Collier. 1991. *Shaping the Political Arena*. Princeton, NJ: Princeton University Press.

Coppedge, Michael, Angel Alvarez, and Claudia Maldonado. 2008. "Two Persistent Dimensions of Democracy: Contestation and Inclusiveness." *Journal of Politics* 70:632-47.

Coppedge, Michael, and Wolfgang H. Reinicke. 1990. "Measuring Polyarchy." *Studies in Comparative International Development* 25:51-72.

Dahl, Robert A. 1971. *Polyarchy: Participation and Opposition*. New Haven, CT: Yale University Press.

Dalton, Russell J. 2006. *Citizen Politics: Public Opinion and Political Parties in Advanced Industrial Democracies*. 4th ed. Washington, DC: CQ Press.

Davey, Brian A., and Hilary A. Priestley. 2002. *Introduction to Lattices and Order*. 2nd ed. New York: Cambridge University Press.

Duncan, Otis Dudley. 1984. *Notes on Social Measurement: Historical and Critical*. New York: Russell Sage.

Duverger, Maurice. 1954. *Political Parties*. London: Methuen.

Elman, Colin. 2005. "Explanatory Typologies in Qualitative Studies of International Politics." *International Organization* 59:293-326.

Evans, Peter. 1995. *Embedded Autonomy: States and Industrial Transformation*. Princeton, NJ: Princeton University Press.

Fish, M. Steven. 2007. "Really Strange Regimes: Personality Cults and Personalistic Dictatorships in the Modern World." Department of Political Science, University of California, Berkeley.

Freedman, David A. 1987a. "As Others See Us: A Case Study in Path Analysis." *Journal of Educational Statistics* 12:101-28.

Freedman, David A. 1987b. "A Rejoinder on Models, Metaphors, and Fables." *Journal of Educational Statistics* 12:206-23.

Gill, Jeff. 2006. *Essential Mathematics for Political and Social Research*. New York: Cambridge University Press.

Goertz, Gary. 2006. *Social Science Concepts: A User's Guide*. Princeton, NJ: Princeton University Press.

Gunther, Richard, and Larry Diamond. 2003. "Species of Political Parties: A New Typology." *Party Politics* 9: 167-99.

Hall, Peter A., and Daniel W. Gingerich. 2009. "Varieties of Capitalism and Institutional Complementarities in the Political Economy: An Empirical Analysis." *British Journal of Political Science* 39:449-82.

Hall, Peter A., and David Soskice. 2001. "An Introduction to Varieties of Capitalism." In *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage*, edited by Peter A. Hall and David Soskice, 1-68. Oxford, UK: Oxford University Press.

Hibbs, Douglas A., Jr. 1987. *The Political Economy of Industrial Democracies*. Cambridge, MA: Harvard University Press.

Hirschman, Albert O. 1970. *Exit, Voice, and Loyalty: Responses to Decline in Firms, Organizations, and States*. New York: Cambridge University Press.

Hirschman, Albert O. 1981. *Essays in Trespassing: From Economics to Politics and Beyond*. New York: Cambridge University Press.

Jackman, Robert W. 1985. "Cross-National Statistical Research and the Study of Comparative Politics." *American Journal of Political Science* 29:161-82.

Kagan, Robert. 2001. *Adversarial Legalism*. Cambridge, MA: Harvard University Press.

Kalleberg, Arthur L. 1966. "The Logic of Comparison: A Methodological Note on the Comparative Study of Political Systems." *World Politics* 19:69-82.

Katz, Richard S., and Peter Mair. 1995. "Changing Models of Party Organization and Party Democracy: The Emergence of the Cartel Party." *Party Politics* 1:5-28.

King, Gary, Robert O. Keohane, and Sidney Verba. 1994. *Designing Social Inquiry: Scientific Inference in Qualitative Research*. Princeton, NJ: Princeton University Press.

Kirchheimer, Otto. 1966. "The Transformation of the Western European Party Systems." In *Political Parties and Political Development*, edited by Joseph LaPalombara and Myron Weiner, 177-200. Princeton, NJ: Princeton University Press.

Krasner, Stephen. 1977. "United States Commercial and Monetary Policy: Unraveling the Paradox of External Strength and Internal Weakness." *International Organization* 31:635-71.

Lanning, Eldon. 1974. "A Typology of Latin American Political Systems." *Comparative Politics* 6:367-94.

Leonard, David K. 1982. "Analyzing the Organizational Requirements for Serving the Rural Poor." In *Institutions of Rural Development for the Poor: Decentralization and Organizational Linkages*, Research Series No. 49, edited by David K. Leonard and Dale Rogers Marshall, 27-37. Berkeley: Institute of International Studies, University of California, Berkeley.

Levy, Jonah D. 2006. *The State after Statism: New State Activities in the Age of Liberalism*. Cambridge, MA: Harvard University Press.

Linz, Juan J. 1975. "Totalitarian and Authoritarian Regimes." In *Handbook of Political Science*, Vol. 3, edited Fred I. Greenstein and Nelson W. Polsby, 175-411. Reading, MA: Addison-Wesley.

Loehlin, John C. 2004. *Latent Variable Models*. Mahwah, NJ: Lawrence Erlbaum.

Mankiw, N. Gregory. 1998. *Principles of Microeconomics*. Fort Worth, TX: Harcourt Brace.

Mares, Isabela. 2003. "The Sources of Business Interest in Social Insurance." *World Politics* 55:229-58.

Marks, Lawrence E. 1974. *Sensory Processes: The New Psychophysics*. New York: Academic Press.

Mazur, Amy. 2001. *State Feminism, Women's Movements, and Job Training: Making Democracies Work in the Global Economy*. New York: Routledge.

McFaul, Michael. 2002. "The Fourth Wave of Democracy and Dictatorship: Noncooperative Transitions in the Postcommunist World." *World Politics* 54:212-44.

McKinney, John C. 1966. *Constructive Typology and Social Theory*. New York: Meredith.

Michell, Joel. 1990. *An Introduction to the Logic of Psychological Measurement*. Hillsdale, NJ: Lawrence Erlbaum.

Michell, Joel. 1997. "Quantitative Science and the Definition of Measurement in Psychology." *British Journal of Psychology* 88:355-83.

Michell, Joel. 1999. *Measurement in Psychology: Critical History of a Methodological Concept*. New York: Cambridge University Press.

Michell, Joel. 2008. "Is Psychometrics Pathological Science?" *Measurement* 6:7-24.

Miller, Benjamin. 2009. "Between the Revisionist and the Frontier State: Regional Variations in State War-Propensity." *Review of International Studies* 35:85-119.

Murillo, M. Victoria. 2000. "From Populism to Neoliberalism: Labor Unions and Market Reforms in Latin America." *World Politics* 52:135-74.

Musgrave, Richard A. 1983. "Public Goods." In *Paul Samuelson and Modern Economic Theory*, edited by E. Cary Brown and Robert M. Solow, 141-56. New York: McGraw-Hill.

Mutz, Diana C. 2007. "Effects of 'In-Your-Face' Television Discourse on Perceptions of a Legitimate Opposition." *American Political Science Review* 101:621-35.

Narens, Louis. 2002. *Theories of Meaningfulness*. Mahwah, NJ: Lawrence Erlbaum.

Nichter, Simeon. 2008. "Vote Buying or Turnout Buying? Machine Politics and the Secret Ballot." *American Political Science Review* 102:19-31.

O'Donnell, Guillermo, and Philippe C. Schmitter. 1986. *Transitions from Authoritarian Rule: Tentative Conclusions about Uncertain Democracies*. Baltimore: Johns Hopkins University Press.

Ostrom, Elinor, Roy Gardner, and James Walker. 1994. *Rules, Games, and Common-Pool Resources*. Ann Arbor: University of Michigan Press.

Pierson, Paul. 2003. "Big, Slow-Moving, and . . . Invisible: Macrosocial Processes in the Study of Comparative Politics." In *Comparative Historical Analysis in the Social Sciences*, edited by James Mahoney and Dietrich Rueschemeyer, 177-207. New York: Cambridge University Press.

Poole, Keith T. 2008. "The Evolving Influence of Psychometrics in Political Science." In *The Oxford Handbook of Political Methodology*, edited by Janet Box-Steffensmeier, Henry E. Brady, and David Collier, 199-213. Oxford, UK: Oxford University Press.

Porkess, Roger. 1991. *Dictionary of Statistics*. New York: HarperCollins.

Reckase, Marc D. 1997. "A Linear Logistic Multidimensional Model for Dichotomous Item Response Data." In *Handbook of Modern Item Response Theory*, edited by Wim J. van der Linden and Ronald K. Hambleton, 271-86. New York: Springer.

Rogowski, Ronald. 1989. *Commerce and Coalitions*. Princeton, NJ: Princeton University Press.

Rubin, Donald B. 2006. *Matched Sampling for Causal Effects*. New York: Cambridge University Press.

Salkind, Neil, ed. 2007. *Encyclopedia of Measurement and Statistics*. Thousand Oaks, CA: SAGE.

Samuelson, Paul A. 1954. "The Pure Theory of Public Expenditure." *Review of Economics and Statistics* 36:387-89.

Sartori, Giovanni. 1970. "Concept Misformation in Comparative Politics." *American Political Science Review* 64:1033-53.

Sartori, Giovanni, ed. 1984. *Social Science Concepts: A Systematic Analysis*. Beverly Hills, CA: SAGE.

Schmitter, Philippe C. 1974. "Still the Century of Corporatism?" *Review of Politics* 36:85-105.

Schmitter, Philippe C. 1977. "Modes of Interest Intermediation and Models of Societal Change in Western Europe." *Comparative Political Studies*. 10:7-38.

Shively, W. Phillips. 1980. *The Craft of Political Research*. 2nd ed. Upper Saddle River, NJ: Prentice Hall.

Shively, W. Phillips. 2007. *The Craft of Political Research*. 7th ed. Upper Saddle River, NJ: Prentice Hall.

Sniderman, Paul M. 1981. *A Question of Loyalty*. Berkeley: University of California Press.

Steiger, James H. 2001. "Driving Fast in Reverse: The Relationship between Software Development, Theory, and Education in Structural Equation Modeling." *Journal of the American Statistical Association* 96:331-38.

Stevens, Stanley S. 1946. "On the Theory of Scales of Measurement." *Science* 103:677-80.

Stevens, S. S. 1975. *Psychophysics: Introduction to its Perceptual, Neural and Social Prospects*. New York: Wiley.

Stinchcombe, Arthur L. 1968. *Constructing Social Theories*. New York: Harcourt, Brace & World.

Takane, Yoshio, and Jan de Leeuw. 1987. "On the Relationship between Item Response Theory and Factor Analysis of Discreticized Variables." *Psychometrika* 52:393-408.

Tarrow, Sidney. 2005. *The New Transnational Activism*. New York: Cambridge University Press.

Teghtsoonian, R. 2002. "Stevens, Stanley Smith (1906-73)." In *International Encyclopedia of the Social and Behavioral Sciences*, 15104-8. Amsterdam: Elsevier.

Tilly, Charles, and Sidney Tarrow. 2007. *Contentious Politics*. Boulder, CO: Paradigm.

Tiryakian, Edward A. 1968. "Typologies." In *International Encyclopedia of the Social Sciences*, vol. 16, 177-86. New York: Macmillan.

Tiryakian, Edward A., and Neil Nevitte. 1985. "Nationalism and Modernity." In *New Nationalisms of the Developed West*, edited by Edward A. Tiryakian and Ronald Rogowski, 57-86. Boston: Allen & Unwin.

Treier, Sean, and Simon Jackman (2008). "Democracy as a Latent Variable." *American Journal of Political Science* 52:201-17.

Vasquez, John. 1993. *The War Puzzle*. New York: Cambridge University Press.

Vogt, Paul W. 2005. *Dictionary of Statistics & Methodology: A Nontechnical Guide for the Social Sciences*. Thousand Oaks, CA: SAGE.

Weber, Max. 1978. *Economy and Society*. Berkeley: University of California Press.

Young, Forrest. 1981. "Quantitative Analysis of Qualitative Data." *Psychometrika* 46:357-88.

Ziblatt, Daniel. 2006. *Structuring the State: The Formation of Italy and Germany and the Puzzle of Federalism*. Princeton, NJ: Princeton University Press.

Appendix to "Putting Typologies to Work"
Glossary of Terms, Inventory of Typologies, and Bibliography

David Collier, Jody LaPorte, and Jason Seawright

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1. Glossary of Terms

Absolute scale. An enumeration of the individuals or entities in a given category.

Categorical versus continuous. A basic distinction between two types of variables. Corresponds to the differences between nominal and ordinal scales, on the one hand, and interval, ratio, and absolute scales, on the other. See Table 1.

Cell types. The concepts and associated terms located in the cells of a typology.

Concept. An idea of a phenomenon formed by combining its attributes; alternatively, an abstract idea that offers a point of view for understanding some aspect of our experience; alternatively, a mental image that, when operationalized, helps to organize the data analysis. These perspectives may seem quite different, but elements of all three routinely enter into work with social science concepts.

Dimensionality. The number of variables entailed in a concept or a data set.

Indicator. An observable facet or aspect of a given concept or phenomenon that is employed in measurement.

Kind hierarchy. An ordered relationship among concepts, in which subordinate concepts may be understood as "a kind of" in relation to superordinate concepts. This is a basic feature of conceptual structure, both in social science and in ordinary usage. A central contribution of typologies is to refine and clarify kind hierarchies.

Level of measurement. A statement of the amount of information contained in a scale; also summarizes other properties of the scale as well (see Table 1).

Measurement. The process of making empirical observations that operationalize a given concept. In some definitions and certainly in this article, this includes scoring of cases based on categorical variables—in addition to quantitative measurement

Measurement scale. See scale.

Multidimensionality. The property of being based on two or more variables; i.e., constructed around multiple attributes or characteristics that assume different values.

Numerical cross-tabulation. A classificatory typology in which the cells contain numerical counts of cases and often percentages, rather than cases identified by names. This may be either a descriptive or explanatory typology.

Overarching concept. The overall concept measured by the typology, as opposed to the component concepts that correspond to the row and column variables, the categories of those variables, or the cell types.

Partial order. A scale which has order among some but not all of the categories.

Qualitative versus quantitative. A heuristic distinction, usefully understood in terms of four overlapping criteria: level of measurement, a large versus small N, whether statistical tests are employed, and whether the analysis is thin (limited amount of information on a larger number of cases) or thick (detailed information about fewer cases). One open issue, relevant to debates on typologies, is whether this distinction corresponds to the contrast between nominal versus higher levels of measurement, or ordinal versus higher levels of measurement.

Row and column variables. The two (or more) dimensions that form a typology.

Scale. A template, employed in measurement, which uses numbers or other symbols to represent the attributes of a variable.

Term. A word that designates a concept.

Type. An analytic category that may be (but is not necessarily) situated in and defined by a typology.

Typology. An organized system of types that breaks down an overarching concept into component dimensions and types.

Typology, classificatory. A form of typology that places the names of cases—for example, countries, wars, or elections—in the conceptually appropriate cells. It may be either a descriptive or an explanatory typology. In one kind of classificatory typology, the numerical cross-tabulation, it is in fact counts or percentages of cases that are entered into the cells, rather than the names.

Typology, conceptual. A form of typology that explicates the meaning of a concept by mapping out its dimensions, which correspond to the rows and columns in the typology. The cell types are defined by their position vis-à-vis the rows and columns.[1] May also be called a descriptive typology.

Typology, descriptive. A form of typology that serves to characterize the phenomenon under analysis; a descriptive typology is generally based on two or more dimensions and the cell types they create. In this sense, descriptive typologies are a form of measurement.

Typology, explanatory. A form of typology in which the cell types together form the dependent variable, and the dimensions that establish the rows and columns are the independent variables.

Typology, multidimensional. A form of typology in which cell types are created by cross-tabulating two or more variables.

Typology, unidimensional. A form of typology in which cell types are created based on a single categorical variable.

[1] A descriptive typology is sometimes called a "property space" (Barton 1955), in that the meaning of the types is defined by their relationship to the "space" established by two or more dimensions.

Typology of accompanying attributes. A cross-tabulation in which the rows are the main types in a typology. The columns are generic names for alternative accompanying attributes, and the cells contain specific "values" of the corresponding accompanying attribute.[2] This form of typology is *not* discussed in the article, and it is important that analysts be able to distinguish it from those that are discussed.

Typology of defining attributes. A cross-tabulation in which the rows are alternative defining attributes of a concept—commonly involving a situation in which the appropriate defining attributes, and hence the meaning of the concepts, are contested. The columns are different authors or rival schools of thought that embrace different combinations of defining attributes.[3] This form of typology is *not* discussed in the article, and it is important that analysts be able to distinguish it from those that are discussed.

Unidimensionality. The property of being based on a single variable; i.e., constructed around a single attribute or characteristic that assumes different values. Virtually any variable can be disaggregated into multiple dimensions. The point is that in a given study, researchers may reasonably claim that unidimensionality has been achieved when they have arrived at a useful level of aggregation, given their analytic goals.

Variable. An attribute or characteristic that is present or absent; alternatively, present or absent to varying degrees. In geometric/spatial terms, if a variable achieves unidimensionality (see definition above), it is a measure in a single line (as in length, breadth, height); one of the three coordinates of position; and the quality of spatial extension.

[2] Lowi's (1964, 713) classic typology of "arenas of power" tabulates accompanying attributes. On accompanying attributes, defining attributes, and minimal definitions, see Sartori (1976, 61-62, 68n22; 2009a, 90-91; 2009b, 134).

[3] Examples of tabulating rival defining attribvutes are Kurtz's (2009, 292) analysis of "peasant" and Kotoswki's (2009, 217) analysis of "revolution." See also note 23.

2. Inventory of Typologies

Political Regimes
Bicameralism (Lijphart 1984)
Commitment to Democracy (Bellin 2000)
Democracy (Lijphart 1968)
Democracy (Weyland 1995)
Democracy, Defense against Internal Threats (Capoccia 2005)
Democracy, Pathways to (von Beyme 1996)
Democracy, Transitions to (Karl 1990)
Democratization (Collier 1999)
Dictatorships, Personalist. (Fish 2007)
Leadership Authority (Ansell and Fish 1999)
Regime Change (Leff 1999)
Regimes (Dahl 1971)
Regimes (Fish 1999)
Regimes (Remmer 1986)
Regimes in Africa (Bratton and van de Walle 1997)
Regimes, Authoritarian (Linz 1975)
Regimes, Postcommunist (McFaul 2002)
Transitions from Authoritarian Rule (O'Donnell and Schmitter 1986)

States and State-Society Relations
Citizenship (Yashar 2007)
Context of Contentious Politics (Tilly and Tarrow 2007)
Corporatism; Policies towards Associability. (Schmitter 1971)
Corruption (Scott 1972)
Ethnofederal State Survival (Hale 2004)
Incorporation of Labor Movements (Collier and Collier 1991)
Incorporation of the Working Class (Waisman 1982)
Informal Politics (Dittmer and Wu 1995)
Interest Representation/Aggregation (Schmitter 1974)
Military Service (Levi 1997)
Nation-States (Haas 2000)
Nation-States (Mann 1993)
National Unification, Regional Support for (Ziblatt 2006)
Nationalism and Religion (Ram 2008)
Outcomes of Social Movements (Gamson 1975)
Revolutions, Agrarian (Paige 1975)
Separatist Activism (Treisman 1997)
State Power (Mann 1993)
States (Ertman 1997)
Transnational Coalitions (Tarrow 2005)
Union-Government Interactions (Murillo 2000)

Parties, Elections, and Political Participation
Electoral Mobilization, Targeting of Rewards for (Nichter 2007)
Market for Votes (Lehoucq 2007)
Party Regimes (Pempel 1990)
Party Systems (O'Dwyer 2004)
Political Mobilization (Dalton 2006)
Political Parties (Levitsky 2001)

Political Economy
Economic Transformations (Ekiert and Kubik 1998)
Factor Endowments (Rogowski 1989)
Financial Regulatory Systems (Vitols 2001)
Goods (Mankiw 2001)
National Political Economy (Hall and Soskice 2001)
National Welfare State Systems (Sapir 2005)
Political Economies (Kullberg and Zimmerman 1999)
Regulatory Reforms (Vogel 1996)
Reregulation Strategies (Snyder 1999)
Russian Elites' Perceptions of Borrowing (Moltz 1993)
Social Policy (Mares 2003)
State Economic Strategies (Boix 1998)
State Intervention in the Economy (Levy 2006)
State Role in Economic Development (Evans 1995)
Strikes (Hibbs 1987)

International Relations
Adversaries (Glaser 1992)
Foreign Policy Decision-Making (Schweller 1992)
Governance in Trade (Aggarwal 2001)
Great Power Conflict Management (Miller 1992)
Human Rights Policies (Sikkink 1993)
Organizational Forms of Information Systems (Dai 2002)
Realism (Taliaferro 2000–01)
Sovereignty (Krasner 1999)
Soviet Strategies (Herrmann 1992)
State Behavior in the International System (Schweller 1998)
States (Miller 2009)
Wars (Vasquez 1993)

American Politics, Public Policy, Public Law, and Organizational/Administrative Theory
Decentralization (Leonard 1982)
Effect of Foreign Policy Issues on Elections (Aldrich, Sullivan, and Borgida 1989)
Informal Institutions (Helmke and Levitsky 2004)
Issue Voters (Carmines and Stimson 1980)
Policemen (Muir 1977)
Policies (Eshbaugh-Soha 2005)
Policy (Lowi 1972)
Policy Decision-Making (Kagan 2001)
Policy Feedback (Pierson 1993)
Policy Implementation (Matland 1995)
Political Relationships (Lowi 1970)
Rational Administration (Bailey 1994)
Rule Application (Kagan 1978)
Rural Development (Montgomery 1983)

Special Purpose Government and Entities (Eger 2005)
Voting Behavior (Abramson, Aldrich, Paolino, and Rohde 1992)
White House-Interest Group Liaisons (Peterson 1992)

Gender Politics
State Responses to Women's Movements (Mazur 2001)
State Feminism (Mazur and Stetson 1995)
State Feminism (Mazur and McBride 2008)
Women's Policy Agency Activity (Mazur 2001)

Social Relations
Looting (Mac Ginty 2004)
Networks (Ohanyan 2009)
Norms (Barton 1955)
Respect, Norms of (Colwell 2007)
Social Environment (Douglas 1982)
Sociality, or Individual Involvement in Social Life (Thompson Ellis and Wildavsky 1990)

Theory and Methodology
Approaches to Comparative Analysis (Kohli 1995)
Case Study Research Designs (Gerring and McDermott 2007)
Explanations of Action (Parsons 2006)
Possible Outcomes of a Hypotheses Test (Vogt 2005)
Survey Questions (Martin 1984)
Theories of Modernization and Development (Janos 1986)
Theories of Political Transformation (von Beyme 1996)
Time Horizons in Causal Analysis (Pierson 2003)
Typologies (Bailey 1992)
Western Scholarship on Russia (Fish 1995)

3. Bibliography to Accompany Inventory of Typologies

Abramson, Paul R., John H. Aldrich, Philip Paolino, and David W. Rohde. 1992. "'Sophisticated' Voting in the 1988 Presidential Primaries." *American Political Science Review* 86: 55–69.

Aggarwal, Vinod K. 2001. Economics: International Trade. In *Managing Global Issues: Lessons Learned*, edited by P. J. Simmons and Chantal de Jonge Oudraat, 234–80. Washington, DC: The Carnegie Endowment for International Peace.

Aldrich, John H., John L. Sullivan and Eugene Borgida. 1989. "Foreign Affairs and Issue Voting: Do Presidential Candidates 'Waltz Before a Blind Audience?'" *American Political Science Review* 83: 123–41.

Ansell, Christopher. K., and M. Steven Fish. 1999. "The Art of Being Indispensable: Noncharismatic Personalism in Contemporary Political Parties." *Comparative Political Studies* 32: 283–312.

Bailey, Kenneth D. 1992. Typologies. In *Encyclopedia of Sociology*, Vol. IV, edited by Edgar F. Borgatta and M. L. Borgatta, 2188–194. New York: Macmillan.

Bailey, Kenneth D. 1994. *Typologies and Taxonomies: An Introduction to Classification Techniques*. Thousand Oaks, CA: Sage Publications.

Barton, Allan H. 1955. The Concept of Property-Space in Social Research. In *The Language of Social Research*, edited by Paul F. Lazarsfeld and Morris Rosenberg, 40–62. Glencoe, IL: The Free Press.

Bellin, Eva. 2000. "Contingent Democrats: Industrialists, Labor, and Democratization in Late Developing Countries." *World Politics* 52: 175–205

Boix, Carles. 1998. *Political Parties, Growth, and Equality*. Cambridge: Cambridge University Press.

Bratton, Michael and Nicholas van de Walle. 1997. *Democratic Experiments in Africa: Regime Transitions in Comparative Perspective*. Cambridge: Cambridge University Press.

Capoccia, Giovanni. 2005. *Defending Democracy: Reactions to Extremism in Interwar Europe*. Baltimore: The Johns Hopkins University Press.

Carmines, Edward G., and James A. Stimson. 1980. "The Two Faces of Issue Voting." *American Political Science Review* 74: 78–91.

Collier, Ruth B. and David Collier. 1991. *Shaping the Political Arena*. Princeton: Princeton University Press.

Collier, Ruth B. 1999. *Paths Toward Democracy: The Working Class and Elites in Western Europe and South America*. Cambridge: Cambridge University Press.

Colwell, Brian. 2007. Deference or Respect? Status Management Practices Among Prison Inmates. *Social Psychology Quarterly* 70: 442–60.

Dahl, Robert A. 1971. *Polyarchy: Participation and Opposition.* New Haven: Yale University Press.

Dai, Xinyuan. 2002. Information Systems in Treaty Regimes. *World Politics* 54: 405–36.

Dalton, Russel J. 2006. *Citizen Politics: Public Opinion and Political Parties in Advanced Industrial Democracies*. 4th edn. Washington, DC: CQ Press.

Dittmer, Lowell, and Yu-Shan Wu. 1995. "The Modernization of Factionalism in Chinese Politics." *World Politics* 47: 467–94.

Douglas, Mary. 1982. *In the Active Voice.* London: Routledge and Kegan Paul.

Eger, Robert J. 2005. "Casting Light on Shadow Government: A Typological Approach." *Journal of Public Administration Research and Theory* 16: 125–37.

Ekiert, Grzegorz, and Jan Kubik. 1998. "Contentious Politics in New Democracies: East Germany, Hungary, Poland and Slovakia, 1989–93." *World Politics* 50: 547–81.
Ertman, Thomas. 1997. *Birth of the Leviathan: Building States and Regimes in Medieval and Early Modern Europe*. Cambridge: Cambridge University Press.
Eshbaugh-Soha, Matthew. 2005. "The Politics of Presidential Agendas." *Political Research Quarterly* 58: 257–68.
Evans, Peter. 1995. "*Embedded Autonomy: States and Industrial Transformation*." Princeton: Princeton University Press.
Fish, M. Steven. 1995. "*Democracy from Scratch: Opposition and Regime in the New Russian Revolution*." Princeton: Princeton University Press.
Fish, M. Steven. 1999. "The End of Meciarism." *East European Constitutional Review* 8: 47–55.
Fish, M. Steven. 2007. Really Strange Regimes: Personality Cults and Personalistic Dictatorships in the Modern World. Department of Political Science, University of California, Berkeley.
Gamson, William A. 1975. *The Strategy of Social Protest*. Homewood, IL: Dorsey Press.
Gerring, John and Rose McDermott. 2007. "An Experimental Template for Case Study Research." *American Journal of Political Science* 51: 688–701.
Glaser, Charles L. 1992. "Political Consequences of Military Strategy: Expanding and Refining the Spiral and Deterrence Models." *World Politics* 44: 497–538.
Haas, Ernst. B. 2000. *Nationalism, Liberalism, and Progress: The Dismal Fate of New Nations*, vol.ii. Ithaca, NY: Cornell University Press.
Hale, Henry E. 2004. "Divided We Stand: Institutional Sources of Ethnofederal state Survival and Collapse." *World Politics* 56: 165–93.
Hall, Peter A., and David Soskice. 2001. An Introduction to Varieties of Capitalism. In *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage*, edited by Peter A. Hall and David Soskice, 1–68. Oxford: Oxford University Press.
Helmke, Gretchen and Steven Levitsky. 2004. "Informal Institutions and Comparative Politics: A Research Agenda." *Perspectives on Politics* 2: 725–40.
Herrmann, Richard. K. 1992. "Soviet Behavior in Regional Conflicts: Old Questions, New Strategies, and Important Lessons." *World Politics* 44: 432–65.
Hibbs, Douglas A., Jr. 1987. *The Political Economy of Industrial Democracies*. Cambridge, MA: Harvard University Press.
Janos, Andrew. 1986. *Politics and Paradigms: Changing Theories of Change in Social Science*. Stanford, CA: Stanford University Press.
Kagan, Robert. A. 1978. *Regulatory Justice: Implementing a Wage-Price Freeze*. New York: Russell Sage Foundation.
Kagan, Robert A. 2001. *Adversarial Legalism.* Cambridge, MA: Harvard University Press.
Karl, T. L. 1990. "Dilemmas of Democratization in Latin America." *Comparative Politics* 22: 1–21.
Kohli, Atul, edited by 1995. "The Role of Theory in Comparative Politics: A Symposium." *World Politics* 48: 1–49.
Krasner, Steven. 1999. *Sovereignty: Organized Hypocrisy*. Princeton: Princeton University Press.
Kullberg, Judith S., and William Zimmerman. 1999. "Liberal Elites, Socialist Masses and Problems of Russian Democracy." *World Politics* 51: 323–58.

Leff, Carol S. 1999. “Democratization and Disintegration in Multinational States: The Breakup of the Communist Federations.” *World Politics* 51: 205–35.

Lehoucq, Fabrice. 2007. When Does a Market for Votes Emerge? In *Elections for Sale: The Causes and Consequences of Vote Buying*, edited by Frederic C. Schaffer, 33–46. Boulder, CO: Lynne Rienner Publishers.

Leonard, David K. 1982. Analyzing the Organizational Requirements for Serving the Rural Poor. In *Institutions of Rural Development for the Poor: Decentralization and Organizational Linkages*, edited by David K. Leonard and Dale R. Marshall, 27–37. Berkeley, CA: Institute of International Studies, Research Series, no. 49.

Levi, Margaret. 1997. *Consent, Dissent, and Patriotism*. Cambridge: Cambridge University Press.

Levitsky, Steven. 2001. “Organization and Labor-Based Party Adaptation: The Transformation of Argentine Peronism in Comparative Perspective.” *World Politics* 54: 27–56.

Levy, Jonah. D. 2006. *The State after Statism: New State Activities in the Age of Liberalism.* Cambridge, MA: Harvard University Press.

Lijphart, Arend. 1968. “Typologies of Democratic Systems.” *Comparative Political Studies* 1: 3–44.

Lijphart, Arend. 1984. *Democracies: Patterns of Majoritarian and Consensus Government in Twenty-One Countries.* New Haven: Yale University Press.

Linz, Juan. 1975. Totalitarian and authoritarian regimes. In *Handbook of political science*, vol. iii, edited by Fred I. Greenstein and Nelson W. Polsby, 175–411. Reading, MA: Addison-Wesley.

Lowi, Theodore. 1970. “Decision Making vs. Policy Making: Toward an Antidote for Technocracy.” *Public Administration Review* 30: 325–34.

Lowi, Theodore. 1972. “Four Systems of Policy, Politics, and Choice.” *Public Administration Review* 32: 298–310.

Mac Ginty, Roger. 2004. “Looting in the Context of Violent Conflict: A Conceptualisation and Typology.” *Third World Quarterly* 25: 857–70.

Mankiw, N. Gregory. 2001. *Principles of Economics*. 2nd edn. Fort Worth, TX: Harcourt College Publishers.

Mann, Michael. 1993. *The Sources of Social Power, Vol II: The Rise of Classes and Nation-States, 1760–1914.* Cambridge: Cambridge University Press.

Mares, Isabela. 2003. “The Sources of Business Interest in Social Insurance.” *World Politics* 55: 229–58.

Martin, Elizabeth. 1984. Scheme for Classifying Survey Questions According to their Subjective Properties. In *Surveying Subjective Phenomena*, Vol. I, edited by Charles F. Turner and Elizabeth Martin, 407–31. New York: Russell Sage Foundation.

Matland, Richard. 1995. Synthesizing the Implementation Literature: The Ambiguity-Conflict Model of Policy Implementation. *J-Part* 5, No. 2 (April): 159–70.

Mazur, Amy. 2001. *State Feminism, Women’s Movements, and Job Training: Making Democracies Work in the Global Economy.* New York: Routledge.

Mazur, Amy, and Dorothy M. Stetson. 1995. Conclusion: The Case for State Feminism. In *Comparative State Feminism*, edited by Amy Mazur and Dorothy M. Stetson, 272–91. London: Sage.

Mazur, Amy, and Dorothy E. McBride. 2008. State Feminism. In *Politics, Gender, and Concepts*, edited by Gary Geortz and Amy Mazur, 244–69. Cambridge: Cambridge University Press.

McFaul, Michael. 2002. "The Fourth Wave of Democracy and Dictatorship: Noncooperative Transitions in the Postcommunist World." *World Politics* 54: 212–44.

Miller, Benjamin. 1992. "Great Power Cooperation in Conflict Management." *World Politics* 45: 1–46.

Miller, Benjamin. 2009. "Between the Revisionist and the Frontier State: Regional Variations in State War-Propensity." *Review of International Studies* 35 (February): 85–119.

Moltz, James C. 1993. "Divergent Learning and the Failed Politics of Soviet Economic Reform." *World Politics* 45: 301–25.

Montgomery, John D. 1983. Decentralizing Integrated Rural Development Activities. In *Decentralization and Development: Policy Implementation in Developing Countries*, edited by G. Shabbir Cheema and Dennis A. Rondinelli, 231–70. Beverly Hills, CA: Sage Publications.

Muir, William. K., Jr. 1977. *Police: Streetcorner Politicians.* Chicago: The University of Chicago Press.

Murillo, M. Victoria. 2000. "From Populism to Neoliberalism: Labor Unions and Market Reforms in Latin America." *World Politics* 52: 135–74.

Nichter, Simeon. 2007. "Vote Buying or Turnout Buying? Machine Politics and the Secret Ballot." *American Political Science Review* 102: 19–31.

O'Donnell, Guillermo. A., and Philipe C. Schmitter. 1986. *Transitions from Authoritarian Rule: Tentative Conclusions about Uncertain Democracies.* Baltimore: Johns Hopkins University Press.

O'Dwyer, Conor. 2004. "Runaway State Building: How Political Parties Shape States in Postcommunist Eastern Europe." *World Politics* 56: 520–81.

Ohanyan, Anna. 2009. "Policy Wars for Peace: Network Model of NGO Behavior." *International Studies Review* 11: 475–501.

Paige, Jeffrey M. 1975. *Agrarian Revolution: Social Movements and Export Agriculture in the Underdeveloped World*. New York: Free Press.

Parsons, Craig. 2006. *How to Map Arguments in Political Science*. Oxford: Oxford University Press.

Pempel, T. J. 1990. Introduction. In *Uncommon Democracies: The One-party Dominant Regimes*, edited by T. J. Pempel, 1–32. Ithaca, NY: Cornell University Press.

Peterson, Mark A. 1992. The Presidency and Organized Interests: White House Patterns of Interest Group Liaison. *American Political Science Review* 86: 612–25.

Pierson, Paul. 1993. "When Effect Becomes Cause: Policy Feedback and Political Change." *World Politics* 45: 595–628.

Pierson, Paul. 2003. Big, Slow-Moving, and. . . Invisible: Macrosocial Processes in the Study of Comparative Politics. In *Comparative Historical Analysis in the Social Sciences*, edited by James Mahoney and Dietrich Rueschemeyer, 177–207. Cambridge: Cambridge University Press.

Ram, Uri. 2008. "Why Secularism Fails? Secular Nationalism and Religious Revivalism in Israel." *International Journal of Politics, Culture and Society* 21: 57–73.

Remmer, Karen L. 1986. "Exclusionary Democracy." *Studies in Comparative International Rueschemeyer Development* 20: 64–85.

Rogowski, Ronald. 1989. *Commerce and Coalitions.* Princeton: Princeton University Press.

Sapir, Andre. 2005. Globalisation and the Reform of European Social Models. Paper prepared for the ECOFIN Informal Meeting in Manchester, September 9, 2005. Accessed http://www.bruegel.org/Files/media/PDF/Publications/Papers/EN_SapirPaper080905.pdf.

Schmitter, Philippe. C. 1971. *Interest Conflict and Political Change in Brazil*. Stanford, CA: Stanford University Press.

Schmitter, Philippe. C. 1974. Still the Century of Corporatism? *Review of Politics* 36 (1): 85– 105.

Schweller, R. 1992. Domestic Structure and Preventive War: Are Democracies More Pacific? *World Politics* 44: 235–69.

Schweller, R. 1998. *Deadly Imbalances: Tripolarity and Hitler's Strategy of World Conquest*. New York: Columbia University Press.

Scott, James C. 1972. *Comparative Political Corruption*. Englewood Cliffs, NJ: Prentice-Hall.

Sikkink, K. 1993. The Power of Principled Ideas: Human Rights Policies in the United States and Western Europe. In *Ideas and foreign policy: Beliefs, institutions, and political change*, edited by Judith Goldstein and Robert O. Keohane, 139–70. Ithaca, NY: Cornell University Press.

Snyder, Richard. 1999. "After Neoliberalism: The Politics of Reregulation in Mexico." *World Politics* 51: 173–204.

Taliaferro, Jeffrey. 2000/2001. "Security Seeking Under Anarchy: Defensive Realism Revisited." *International Security* 25: 128–61.

Tarrow, Sidney. 2005. *The New Transnational Activism*. Cambridge: Cambridge University Press.

Tilly, Charles., and Tarrow, Sidney. 2007. *Contentious Politics*. Boulder, CO: Paradigm Publishers.

Thompson, Michael, Richard Ellis, and Aaron Wildavsky. 1990. *Cultural Theory*. Boulder, CO: Westview Press.

Treisman, Daniel S. 1997. Russia's "'Ethnic Revival': The Separatist Activism of Regional Leaders in a Postcommunist Order." *World Politics* 49: 212–49.

Waisman, Carlos H. 1982. *Modernization and the Working Class*: *The Politics of Legitimacy*. Austin, TX: University of Texas Press.

Weyland, Kurt. 1995. "Latin America's Four Political Models." *Journal of Democracy* 6: 125–39.

Vasquez, John A. 1993. *The War Puzzle*. Cambridge: Cambridge University Press.

Vitols, Sigurt. 2001. The Origins of Bank-Based and Market-Based Financial Systems: Germany, Japan, and the United States. In *The Origins of Nonliberal Capitalism: Germany and Japan in Comparison*, edited by Wolfgang Streeck and Kozo Yamamura,171–99. Ithaca, NY: Cornell University Press.

Vogel, Steven K. 1996. *Freer Markets, More Rules: Regulatory Reform in Advanced Industrial Countries*. Ithaca, NY: Cornell University Press.

Vogt, W. Paul. 2005. *Dictionary of Statistics of Methodology: A Nontechnical Guide for the Social Sciences*. 3rd edn. Thousand Oaks, CA: Sage Publications.

Von Beyme, Klaus. 1996. *Transition to Democracy in Eastern Europe*. New York: St Martin's Press.

Yashar, Deborah. 2007. Citizenship Regimes, the State, and Ethnic Cleavages. In *Citizenship in Latin America*, edited by Joseph S. Tulchin and Meg Ruthenberg, 31–53. Boulder: Lynne Rienner.

Ziblatt, Daniel. 2006. *Structuring the State: The Formation of Italy and Germany and the Puzzle of Federalism*. Princeton: Princeton University Press.