Research Note: Toward an Integrated Model of Concept Formation

“The process of thinking inevitably begins with a qualitative (natural) language, no matter at which shore we shall subsequently land.” -Giovanni Sartori

I. Introduction

Conceptual confusion has devastating consequences for scientific inference—be it descriptive or causal, qualitative or quantitative. For example, case study comparisons often rely on matching techniques based in shared conceptual categories to overcome the problems of indeterminancy (too many plausible independent variables given the number of cases). If those conceptual categories have been “stretched” beyond recognition such that they can, in fact, accommodate broadly dissimilar cases, then analytical leverage is lost. Most statistical models, on the other hand, are grounded explicitly in assumptions of basic unit heterogeneity. Violating those assumptions, which can occur when concepts lose meaning or are applied inappropriately and unthinkingly, severely compromises the validity of results. Indeed, measurement itself takes as its antecedent the formation of concepts: before measurement can occur, we must have some notion of what is to be measured. Poorly developed concepts thus translate directly into measurement error which can bias quantitative studies in unknown directions. Precision and clarity in concept development are thus critical to drawing reliable inferences from empirical research.

Giovanni Sartori warned the political science community about the inherent dangers of conceptual “stretching” long ago—and proposed a framework, the “ladder of abstraction,” for maintaining unit homogeneity and thus the basis for comparison. Recent scholarship, however, has found this framework unsatisfactory in several important ways. Collier and Levitsky, in analyzing work on

1Sartori 1970, 1038.
the third wave of democratization, argue that Sartori’s framework cannot cope adequately with what they term “diminished subtypes”—cases that appear to fit the mold of a concept well except that they are missing a single defining attribute. Gary Goertz, on the other hand, argues for a different scheme of conceptualization that moves away from Sartori’s proclivity for dichotomizing and instead proposes a continuum of gradations from the positive, ideal-type of a concept to its negation. While these scholars point out important shortcomings of Sartori’s “concept ladder,” their solutions fall prey to the original problem that he sought to overcome—conceptual stretching and its inherent threat to inference.

As a solution, this research note proposes an integrated model of concept formation: one that defines concepts along a clear “ladder of abstraction” while at the same time ordering related concepts from a positive to a negative poll and accounting for the relevant absence of one or more attributes of a concept. Thus, the analytical benefits of Collier and Levitsky’s and Goertz’s frameworks are retained without sacrificing conceptual clarity and precision.

II. Sartori’s Concept Ladder

In 1970, Giovanni Sartori entreated the political science community to pay greater attention to concept formation. Examining the research of his day, Sartori identified a pervasive problem in the field’s tendency toward what he termed conceptual stretching: the misapplication of western political concepts to an increasingly broad and diverse array of countries. This extension of traditional concepts had led, in his view, to the routine inclusion of inappropriate cases into conceptual categories (especially in the burgeoning quantitative literature) as well as to the extreme watering-down of the concepts themselves—such that they no longer retained any real defining characteristics and ceased to reveal useful information about political and social realities.²

In response, Sartori advocated careful concept construction according to a hierarchical, taxonomic model based in principles of appropriate classification: the now famous “ladder of abstrac-

²Ibid, 1034-1035.
tion.” What is oft forgotten, however, is that this model was structured according to Sartori’s fundamental concern with the logic of appropriate comparison; of establishing what is homogeneous and therefore comparable with what is heterogenous and therefore non-comparable.³ It is out of this fundamental concern that the either-or, mutually-exclusive nature of his classificatory system grew:

“Classes are required to be mutually exclusive, i.e., class concepts represent characteristics which the object under consideration must either have or lack. Two items being compared must belong first to the same class, and either have or not have an attribute; and only if they have it, the two items can be matched in terms of which has it more or less [emphasis original]”⁴

Hence, only once it is established that two objects are indeed comparable—that they possess the same attributes, and therefore belong to the same category—do questions of gradation, of more or less, come into play. Homogeneity matters most, and homogeneity is established through careful concept construction.

With these underlying principles in mind, we can now review the tenets of Sartori’s “ladder of abstraction.” Here, related concepts are situated vertically with their relative position determined by their number of well-defined constitutive attributes: the more abstract the concept (the fewer definitional attributes it possesses), the higher up the ladder it goes. Thus, the highest concept on any given ladder would logically have very few attributes, such as “electoral regime,” wherein a country need only hold elections to qualify. As one moves down the ladder, each concept is considered a subtype of those that preceded it, possessing all of their attributes plus one or more additional characteristics. For example, we would consider “democracy” a subtype of “electoral regime” since democracies too hold elections and yet they must also possess additional qualities such as free and fair contestation and civil liberties. In turn, we would consider “Presidential Democracy” as a subtype of both “electoral regime” and “democracy” (see Figure 1). Thus, to add

³Ibid, 1036.
⁴Ibid, 1038.
an additional attribute to an existing concept forms a new, sub-type concept that is lower on the ladder of abstraction yet still visually connected to its parent concept, mirroring the constructions of classical taxonomy.

As many have noted, Sartori’s concept ladder was particularly insightful as it highlighted the inverse relationship, or the trade-off, between definitional “thickness” and traveling capacity. The fewer attributes required of a concept, the greater its abstraction, and the more cases to which it could conceivably apply. Likewise, the more attributes necessary to define a concept, the lower its abstraction, and the fewer cases it could possibly encompass. Sartori’s concept ladder thus provided social scientists a powerful tool that at once enforces clarity and precision in concept building, develops a means of relating concepts to one another, and establishes scope conditions around the applicability of those concepts.

Yet, recent criticisms have challenged Sartori’s model, arguing that in some instances it cannot provide sufficient levels of conceptual differentiation and that certain types of concepts, just as essential to social-scientific inquiry, cannot be captured within his strict taxonomic structure. The
following two sections will discuss two particularly incisive critiques and their suggestions for modified or alternative models of concept formation: diminished subtypes and family resemblance types.

III. Diminished Subtypes

In their 1997 *World Politics* Research Note, Collier and Levitsky argue that the post-Cold War wave of democratization led to a proliferation of new regimes that shared many characteristics of established democracies but nonetheless differed in profound ways from them. For scholars seeking to analytically cope with this diversification of so-called democratic forms, Sartori’s classic concept scheme proved inadequate. The problem was that these new democracies failed to meet (usually) one of the traditional defining standards of democracy (and yet were otherwise reasonably democratic): they had less than full suffrage, partially restricted civil liberties, or biased rules of contestation, among other such defects.\(^5\)

In an effort to classify these systems in a meaningful way, and with an eye to avoiding conceptual stretching, many scholars attempted to adapt Sartori’s ladder through the practice of defining “diminished subtypes” or employing “democracy with adjectives.” Thus, we have “restricted democracies,” “illiberal democracies,” and “oligarchical democracies”; all of which are defined according to the one democratic attribute they lack (see Figure 2). Indeed, Collier and Levitsky defend this strategy as a way to differentiate cases without falling prey to conceptual stretching because it specifies the missing attribute while still identifying the attributes that are present.\(^6\)

I contend, however, that while diminished subtypes do indeed provide much needed analytical differentiation, they do not avoid Sartori’s notion of conceptual stretching. And, more importantly, their use violates the fundamental either-or logic of classification that Sartori himself insisted was necessary to properly establish unit homogeneity and thus our very ability to meaningfully compare.

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\(^5\) Collier and Levitsky, 1997, p.430.
\(^6\) Ibid, p.438.
Diminished subtypes are not true subtypes, in a formal sense, as all of their attributes are not shared by the parent concept. This misapplication of logical subtypes has great consequence: it not only undermines unit homogeneity, and thus comparability, but also drains the initial concept, here democracy, of any substantial meaning. Let me demonstrate this by mapping out the logical space inhabited by only some of the diminished subtypes of democracy identified by Collier and Levitsky (again, see Figure 2). Let us first define democracy as a regime type with regular elections, full suffrage, free and fair contestation, and civil liberties. A diminished subtype of democracy has been expounded for the absence of any of these attributes except regular elections: “illiberal democracy” lacks civil liberties, “restricted democracy” lacks free and fair contestation, and “oligarchical democracy” lacks full suffrage. This leaves regular elections as the only universal characteristic of all democracies. Thus “democracy” becomes equated with “electoral regime.” From here, the violation of unit homogeneity is relatively simple to understand: if the expanded set of “democracies”
do not qualitatively share an underlying set of definitional attributes then by comparing them we do not learn anything meaningful about democracy. This is not to say that no comparison can be made, but that the results of such a comparison would rather tell us something about a more abstract category such as “electoral regimes.”

IV. Theorizing the Continuum Between Negative and Positive Poles

In his book, Social Science Concepts, Gary Goertz directly takes issue with Sartori’s either-or logic of classification (as well as Collier and Levitsky’s modifications to it). Instead, he argues that one should treat “all concepts as continuous” for, “often, to dichotomize is to introduce measurement error.”7 Out of this re-orientation in basic categorical logic, Goertz entreats scholars to think in terms of conceptual continuums for “if you are thinking in terms of ladders all you can do is go up or down... my metaphorical universe also runs from left to right, from negative to positive pole...”8 We should thus first explicitly theorize the positive, ideal-type of the concept as well as its true negation, what he refers to as the positive and negative poles. Then we must theorize the grey zone in between the poles, or the various intermediary conceptual forms that might lie along that continuum.9

I believe Goertz’s insight here to be quite important and yet perhaps misguided. We certainly should be able to think laterally—to place concepts in relation to one another along a continuum between what we consider to be important opposites, such as autocracy and democracy. Yet, throwing away the most basic elements of Sartori’s classificatory system—the either-or logic underlying unit homogeneity and thus comparability—seems a monumental and perhaps unnecessary sacrifice.

A closer examination of Goertz’s model, as it is used in practice, will illuminate its possible reconciliation with Sartori’s framework. Figure 3 presents Goertz’s conceptualization of democracy (without placing it in relation to more abstract concepts).10 As becomes quickly apparent, what

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7Goertz, 2006, p.34.
8Ibid, p.82
9Ibid, p.34.
10Ibid, p.82.
Goertz considers a continuum within a concept is more readily understood as a continuum of distinct concepts (all regime-oriented) set in relation to one another. Moreover, the presence or absence of dichotomous attributes still defines membership within those concepts. We have not defined democracy along a true continuous scale of, say, the degree to which citizens can freely and fairly contest elections. Rather, concepts are arrayed according to how many of the core attributes of democracy they possess. Unlike other possible interpretations of Goertz’s recommendations, this continuum does not contradict Sartori’s logic. It is therefore at least theoretically possible to combine some of Goetz’s insights into the “ladder of abstraction” framework.

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**Figure 3: An Example of Goertz’s Concept Continuum:**

<table>
<thead>
<tr>
<th>Pole +</th>
<th>Pole −</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authoritarianism (¬E, ¬C, ¬L)</td>
<td>Illiberal, Controlled Democracy (E, ¬C, ¬L)</td>
</tr>
<tr>
<td>(missing ALL attributes)</td>
<td>←</td>
</tr>
</tbody>
</table>

E = elections, C = free and fair contestation, L = civil liberties, and ¬ = absence of attribute

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V. Toward an Integrated Model of Concept Formation

Both Goertz and Collier and Levitsky identify significant shortcomings in Sartori’s recommendations for concept formation—respectively, the “ladder of abstraction”’s inability to array concepts from negative to positive poles and its restricted capacity for analytical differentiation in the face
of complex concepts. Yet, the suggested corrections fall prey to the fundamental problem that Sartori originally set out to overcome: conceptual stretching which undermines unit homogeneity and hence the very basis of useful comparison. Is there a way, then, to combine the three tasks of the authors at hand? To clearly define concepts along a concept ladder, thereby preventing conceptual ambiguity and stretching, to take into consideration the relevant absence of a particular attribute, and to order a concept from a positive to a negative pole? I believe so, and indeed in the combination of the three concerns may lie the strongest model of concept mapping and formation.

Figure 4 presents an initial attempt at an integrated model of concept formation. Here, the concept map combines a vertical ordering of abstraction with an horizontal ordering between poles. Following Sartori, the addition or subtraction of attributes—understood as either a positive quality or its absence—moves subtypes up or down the ladder. Following Goertz, the proportion of missing attributes (negations of positively defined attributes), on the other hand, moves the concept laterally from the positive to the negative pole. The positive pole is thus defined as a concept possessing all of the specified positive attributes for that level of abstraction while the negative pole is defined as a concept embodying its complete negation.

This mapping technique gains analytical differentiation and the ability to use conceptual continuums without sacrificing the crucial advantages of Sartori’s either-or taxonomy—we still know in exactly which ways units are homogeneous and thus comparable. Within a single concept, such as “liberal democracy,” we can then turn to a logic of degrees and, for example, measure how the relative competitiveness of elections affects outcomes of interest such as post-electoral ethnic violence. Or we can compare across specified heterogeneous subtypes and use the precision gained by this model of concept formation to isolate the effect of a specified attribute (this parallels the logic behind indicator variables in regression analysis). For example, if we wanted to understand how free and fair contestation impacts the quality of public goods provision (such as health care), we would compare the set of “liberal restricted electoral regimes” to the set of “liberal democracies” in Figure 4 since they only differ according to the attribute of interest.
Figure 4: An Integrated Model of Concept Formation:

- Pole ← ________________________ → + Pole

E = elections, C = free and fair contestation, L = civil liberties, and ~ = absence of attribute
VI. Conclusion

In their work on concept development, Collier and Levitsky and Goertz identify legitimate shortcomings of Sartori’s “ladder of abstraction.” We should be able to accommodate a proliferation of “diminished subtypes” when contemplating important concepts like democracy. We should also be able to integrate missing attributes into our conceptual frameworks and order concepts on a gradation from positive to negative ideal types. These two aims, however, ought not to be accomplished via “conceptual stretching”—the critical threat to inference that Sartori originally sought to remedy. Rather, an integrated model of concept formation is necessary—one that captures the comparative strengths of all three models without entailing sacrifices in clarity and precision. It is my hope that the model proposed here, an attempt at such integration, stands up to careful scrutiny—that it achieves increased analytical flexibility while maintaining the careful construction of unit homogeneity central to reliable inference.

References

