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# Explanatory Typologies in Qualitative Studies of International Politics

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**Abstract** Explanatory typologies are powerful tools in the qualitative study of international politics. They are likely to be most valuable when scholars systematically apply shared techniques. This article provides an account of analytic steps used in working with typologies, and an accessible vocabulary to describe them. These analytic steps are illustrated with concrete examples drawn from prominent versions of offensive structural, defensive structural, and neoclassical realism. Five forms of cell compression—rescaling and indexing, as well as logical, empirical, and pragmatic compression—are considered, along with the drawbacks associated with each. The expansion of a partial typology and the rediscovery of deleted cells are also discussed. Finally, the article considers the potential drawbacks of a typological approach, and argues that scholars must be mindful of the risks of reification and of relabeling anomalies.

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Until recently, political scientists took an approach to qualitative methods reminiscent of Molière's prose-speaking Monsieur Jourdain: ever present in application, but with little or no conscious preparation. Qualitative methods were absorbed by reading books and articles that used them.<sup>1</sup> The same mix of ubiquity and indifference characterized the use of typologies, and their associated property spaces, in the qualitative study of international politics.

Thanks in no small part to the efforts of King, Keohane, and Verba, and to the vigorous debates that their 1994 volume sparked, the discipline has revisited the

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1. See Bennett, Barth, and Rutherford 2003.

need for formal training in qualitative methods.<sup>2</sup> In addition, scholars of American political development, comparative politics, and international relations have produced a wide-ranging literature discussing and appraising different methodological choices.<sup>3</sup> This scholarship notwithstanding, typologies have yet to receive much attention from researchers using qualitative methods to analyze international politics.<sup>4</sup>

There is, in fact, a deep disconnect between the widespread but often implicit employment of explanatory typologies, and the rarity with which available typological techniques are deliberately considered and applied. Occasionally, theorists will take a more explicit approach, but even then the disconnect is evident, with techniques being recreated without reference to extant but now obscure texts. Sartori is right to suggest that in methodology to “rediscover the ‘forgotten known’ is just as important as to discover (anew) an unknown.”<sup>5</sup> Recreating existing methods wastes time much better spent on substantive research. In addition, research based on a shared methodological canon is more transparent to consumers, and facilitates knowledge cumulation.

This article considers some of the benefits of using explanatory typologies in the qualitative study of international politics. It then discusses two techniques employed in refining typologies: compression and expansion. Compression facilitates working with multivariable explanatory typologies that would otherwise be too large and complex to be helpful. Expansion allows the analyst to discover missed combinations and suppressed assumptions, and to identify important cases.<sup>6</sup> These procedures are illustrated in this article by applying them to refine typologies derived from Walt’s balance of threat theory,<sup>7</sup> and Mearsheimer’s offensive structural realism,<sup>8</sup> both well-regarded and influential theories in the subfield.<sup>9</sup> Although both authors implicitly use typological reasoning, neither explicitly

2. For example, by February 2005 nearly 300 graduate students had attended training institutes run by the Consortium for Qualitative Research Methods (see <http://www.asu.edu/clas/polisci/cqrm>). In a related development, the petition creating the American Political Science Association (APSA)’s organized section on qualitative methods collected more than one thousand signatures, including those of twenty-eight APSA presidents and seven *APSR* editors. By the end of its first full year, the new section was the seventh largest of the thirty-four organized sections, with more than 740 members.

3. See, for example, Van Evera 1997; Gerring 2001; Brady and Collier 2004; and George and Bennett 2005. For similar developments in comparative-historical research, see Mahoney and Rueschmeyer 2003.

4. See George and Bennett 2005; and Bennett 1999b for outstanding exceptions to this observation.

5. Sartori 1994, 14.

6. Lazarsfeld 1937; Lazarsfeld and Barton 1965; and Barton 1955 prefer the labels “reduction” and “substruction” to compression and expansion.

7. Walt 1987.

8. Mearsheimer 2001.

9. Walt 1987 provided the first complete statement of balance of threat theory. Walt later applied the theory to other geographical regions, and to other substantive research questions. See especially Walt 1988, 1991, 1992a, 1992b, 1996, and 2000. Mearsheimer 2001 provides a book-length treatment of the theory previewed in Mearsheimer 1990, 1994/1995, and 1995.

presents the typology suggested by their theory. I suggest how these typologies might be developed, and how different techniques can be used to compress and expand them.

The article then analyzes Schweller's neoclassical balance-of-interests theory.<sup>10</sup> In contrast to Walt and Mearsheimer, Schweller explicitly derives a typology, employing some of the procedures described in this article. I use Schweller's theory to illustrate two potential pitfalls of employing explanatory typologies. The first is a form of reification, where the labels given to a typology's categories displace the underlying theory from which the typology was derived. The second occurs when empirical puzzles for a theory are disguised by adding cells that name, but do not explain, the aberrant predictions. This amounts to the semantic relabeling of anomalies, not the development of better theory. One possible solution to this problem is to require that the theoretical move that generates the additional dimensions in the property space do more than just address the puzzle, but also provide added value. Philosophers of science, however, disagree about how that value should be measured.

Explanatory typologies are an inseparable part of the qualitative study of international politics. Given this close connection, the procedures described in this article may seem habitual, even intuitive. Notwithstanding this seeming familiarity, there are significant advantages to proceeding more self-consciously. Reconnecting with the logic that underlies and justifies current practices in working with typologies will encourage rigor, enhance transparency, and increase the likelihood of producing cumulative results.

## Explanatory Typologies

Typologies have a distinguished history in the social and natural sciences, and discussions of what they are and how they work have generated a large body of literature.<sup>11</sup> Mastering this literature is made difficult by the proliferation of labels for different kinds of types, including extreme, polar, ideal, pure, empirical, classificatory, constructed, and heuristic.<sup>12</sup> In addition, methodologists tend to invent new terms for the different components in their "typology of typologies," and to then compare their approach with previous treatments of other scholars.<sup>13</sup> As a result,

10. Schweller 1998.

11. For overviews and reviews see, for example, Capecchi 1968; Nowotny 1971; Marradi 1990; Bailey 1972, 1973, 1992, and 1994; and Tiryakian 1968.

12. McKinney 1957, 300, and 1969, 4, n. 1.

13. For example, both Hempel (1965b, 160) and Bailey (1973, 20–21) note an overlap between their readings and Becker's (1940) "constructed types." Similarly, McKinney (1950, 235, n. 1, and 1954, 139, n. 1) follows Becker's usage of constructed types as incorporating or referring to the earlier terms "ideal" and "pure" types.

the choice of labels for describing the subset of typologies and typological procedures discussed in this article is difficult and somewhat arbitrary. In the end, my selection was guided by this article's central goal of offering an accessible vocabulary to characterize a series of analytic moves that may be undertaken in working with typologies, and then to illustrate those moves with concrete examples.<sup>14</sup>

This article focuses on what I will call explanatory typologies, by which I mean multidimensional conceptual classifications based on an explicitly stated theory.<sup>15</sup> Explanatory typologies invoke both the descriptive and classificatory roles of typologies albeit, as noted in Table 1, in a way that incorporates their theoretical focus. At its most straightforward, the descriptive role builds types from the "compounds of attributes" of concepts.<sup>16</sup> For example, a typology of political systems can be constructed from the dichotomously coded (as present/not present) attributes of concepts such as "universal franchise," "peaceful transfers of political power," and "civil liberties." In this example, each unique combination of the attributes of the included concepts provides a separate compound concept defining a different political system. Conventional usage arrays the component attributes in rows and columns to construct an associated property space. Every cell in that space captures a possible grouping of the attributes of the concepts being organized.<sup>17</sup>

In an explanatory typology, the descriptive function follows the conventional usage, but in a way that is heavily modified by its theoretical purposes. The constituent attributes are extracted from the variables of a preexisting theory. The dimensions of the property space (its rows and columns) reflect alternative values of the theory's independent variables, so each cell in the space is associated with predicted values of the theory's intervening or dependent variables.<sup>18</sup> This associ-

14. To that end, wherever possible, I have attempted to use ordinary language labels for the methods discussed. Sometimes this means choosing from among several alternative words used by different methodologists to describe the same thing (for example, the "classificatory" role of typologies); sometimes modifying a methodologist's term (for example, changing "empirical functional reduction" to "empirical compression"); and sometimes replacing it entirely with a different label (for example, substituting "expansion" for "substruction").

15. The approach to typologies taken in this article partly parallels Watkins' (1953) reading of Weber's "individualistic" ideal types. See also McIntosh 1977, 267, n. 11; and Lindbeck 1992, 292–95. For different interpretations of ideal types, see Albrow 1990; Burger 1987, 160–67; 2001; Clarke 2001; Hekman 1983; and Rogers 1969. It is also sympathetic to, but goes beyond, Stinchcombe's (1987, 43–47) description of type-concepts and typologies. The approach is also consistent with that taken by Ragin (2000, 76–87) but without adopting his Boolean data analytic strategy of qualitative comparative analysis (QCA) or fuzzy sets (Ragin 2000, 120–45; and Ragin 1987). While Ragin's QCA and fuzzy sets methods are intriguing, the purpose of this article is more modest: to reacquaint international relations theorists with the methodological underpinnings of their already used but taken-for-granted ways of doing business.

16. Lazarsfeld 1937, 120.

17. Lazarsfeld and Barton 1965, 169.

18. See McKinney (1950, 238, and 1954, 164–69) on the relationship between theories and typologies. Note, however, that McKinney's "constructive typologies" are not always, or perhaps not even usually, theoretical in the sense used in this article. For example, while McKinney (1954, 195, and 1966, 63) acknowledges that typologies can be derived from theories, he also suggests (1966, 63) that they can most usefully be constructed directly from the particularities of a historical situation.

TABLE 1. *Goals of typologies*

	<i>Descriptive</i>	<i>Classificatory</i>	<i>Explanatory</i>
<i>Analytic move(s)</i>	Defines compound concepts (types) to use as descriptive characterizations.	Assigns cases to types.	Makes predictions based on combinations of different values of a theory's variables. Places data in relevant cells for congruence testing and comparisons to determine whether data is consistent with the theory.
<i>Question(s) answered</i>	What constitutes this type?	What is this a case of?	If my theory is correct, what do I expect to see? Do I see it?
<i>Example</i>	What is a parliamentary democracy as opposed to a presidential democracy?	Are Britain and Germany parliamentary or presidential democracies?	According to the normative variant of the democratic peace theory, what foreign policy behavior is predicted from a dyad of two mature parliamentary democracies? Do the bilateral foreign policies of Britain and Germany agree with that prediction?

*Note:* Although the same typology can be used first to define types and then to classify cases, these are separate operations. Similarly, although an explanatory typology combines a form of both description and classification, these are heavily bounded by the typology's overtly theoretical nature: description here entails the explicit use of a theory to derive cells that are associated with predictions, and classification involves the coding and comparing of cases in the typology to test them.

ation changes the descriptive question being answered from “What constitutes this type?” to “If my theory is correct, what do I expect to see?”

The classificatory function of typologies determines to which “type” a case can be characterized as belonging. Beginning with a typology, empirical data is coded as falling into one cell or another, guiding scholars to answer the question “What is this a case of?” The property space can be used to map, and compare, a population of cases by their respective scores on the component attributes of the typology. In explanatory typologies, the classificatory function focuses exclusively on evidence that can arbitrate the theoretical claims being made. For example, analysts may investigate a case to determine whether there is the anticipated congruence between its scores on the typology’s dimensions, and the predictions made in the cell in which the case is expected to belong. In addition, as noted below, the analyst can use the location of cases in different cells as a guide to making the most productive comparisons for testing the underlying theory.

An explanatory typology is based on an explicitly stated preexisting theory.<sup>19</sup> That theory may have been originally derived inductively from observations, or deductively using ordinary language or formal methods. Regardless of how the theory was first produced, however, an explanatory typology is primarily a complement to deductive approaches, because filling in the cells requires working through the logical implications of the theory: given its posited causal relationships, what particular outcomes are associated with different combinations of values of the theory’s variables? The dimensions of the property space are provided by the theory’s explanatory variables, and the content of the cells come from the logic of the theory. It follows that explanatory typologies may be usefully combined with formal modeling, with benefits for both approaches.<sup>20</sup>

Notwithstanding the potential overlap with formal modeling, the focus in this article is on how explanatory typologies can be helpful to qualitative scholars, who have traditionally combined ordinary language theorizing with the intensive study of a small number of cases using comparative-case, process-tracing, and congruence-testing methods. Qualitative scholars can enhance both the development and testing of their theories with a more self-conscious application of typological procedures. With respect to theory development, typologies are complementary to specifying configurative or conjunctive causation,<sup>21</sup> describing equifinality or multiple sufficient causation,<sup>22</sup> and building in temporal effects.<sup>23</sup> With respect to theory

19. In this regard, explanatory typologies can be strongly contrasted with purely inductive typologies, which begin with data, and seek to group observations on the basis of the similarities that they share. See Bailey 1994, vol. 6.

20. I am grateful to an anonymous reviewer for suggesting this point. On the benefits of formal models, see Powell 2002; and Bueno de Mesquita and Morrow 1999, 56–57.

21. Ragin 2000, 67–82. See Brady 2002 for an outstanding review of different models of causal inference.

22. Bennett 1999a, 9. See also Bennett and George 2001, 138.

23. On such phenomena, see Pierson 2000 and 2003; Mahoney 2000; Buthe 2002; Thelen 2003; and Aminzade 1992. On typologies and time, see Nowotny 1971.

testing, typologies help scholars to identify the degree of causal homogeneity between cells,<sup>24</sup> and to engage in counterfactual reasoning.<sup>25</sup>

Two qualifications should be underscored regarding claims for the usefulness of explanatory typologies. First, the leverage gained from expanding or compressing a property space is limited by the quality of its underlying theory. A major strength of an explanatory typology is the requirement that scholars work through the logical implications of the underlying theory when its variables take on different values. It follows that typologies based on logically inconsistent theories are unlikely to have helpful substantive content. The theories I use as examples in this article derive from the ordinary language realist tradition, a genre that has been subjected to considerable logical criticism.<sup>26</sup> My intention in this article is to demonstrate how property spaces can be manipulated for the purpose of strengthening valid causal inference, not to defend the particular theories from which my examples are drawn.<sup>27</sup> Scholars who discount the substantive results of these realist examples may nevertheless deploy the demonstrated typological techniques in other research programs.

The second caveat is that including too many variables and/or increasing the number of categories encompassing particular variables may result in a typology that is too large to be useful. For example, coding a four-variable typology trichotomously instead of dichotomously raises the number of cells from sixteen to eighty-one ( $3^4$ ), and increasing the number of dichotomous variables from four to six results in sixty-four cells ( $2^6$ ).<sup>28</sup> To the extent that a theory stipulates the interaction of multiple variables, explanatory typologies are likely to require substantial reduction in the number of cells before they are of value.<sup>29</sup> As the next section discusses, however, large property spaces may be amenable to compression.

**Explanatory typologies are likely to be most valuable in the qualitative study of international politics when scholars self-consciously employ typological techniques.** To date, the subfield has lacked an account of what analytic moves are available, an accessible vocabulary to describe them, and concrete examples of how these techniques can be applied. The next two sections of this article build on Lazarsfeld and Barton to develop procedures for manipulating explanatory typologies, looking first at techniques for compression, and then for expansion.

24. See Munck 2004, 111; Nowotny 1971, 6–11; Bennett 1999, 21; Rogowski 2004, 7; McKeown 2004, 13; Eckstein 1975, 117–20; and Przeworski and Teune 1970, 32–39.

25. Tetlock and Belkin 1996, 4. See also Fearon 1991; and Hempel 1965b, 164–65.

26. See, for example, Fearon 1995; and Powell 2002. I am grateful to an anonymous reviewer for bringing this problem to my attention.

27. See Walt 2002 for a defense of the continuing relevance of realist theories, and Walt 1999 for critiques of formal modeling. See Bueno de Mesquita and Morrow 1999; Martin 1999; Niou and Orde-shook 1999; Powell 1999; and Zagare 1999 for responses to Walt's critiques.

28. Bailey 1994, 4.

29. For example, Copeland's (2000) dynamic differentials theory can be read as including as many as nine causal factors. Even coded dichotomously, a complete representation of those nine variables would require 512 cells.

## Compressing the Number of Cells in a Property Space

Lazarsfeld, building on Hempel and Oppenheim, provided the seminal discussion of the different techniques for compressing a property space, later developing them further with Barton.<sup>30</sup> Lazarsfeld and Barton define a “reduction” (what I am calling a “compression” in this article) as “any classification as a result of which different combinations fall into one class.”<sup>31</sup> As shown in Table 2, the compression procedures discussed in this section are: *rescaling compression* (reducing the level of measurement); *indexing* (treating equal totals of additive causal variables as equivalent); *logical compression* (deleting cells that are the product of impossible or highly improbable combinations of variables); *empirical compression* (deleting empty cells); and *pragmatic compression* (collapsing contiguous cells if their division serves no useful theoretical purpose). These different techniques, and their advantages and disadvantages, are most usefully presented in the context of an example, and in this section I use Walt’s *Origins of Alliances*.<sup>32</sup>

Building on Walt’s version of balance of power theory,<sup>33</sup> Walt’s balance of threat theory expands the number of causal variables.<sup>34</sup> Walt argues that in deciding whether to balance, states look not just at aggregate power (more is more threatening); but also at geographical proximity (closer is more threatening); offensive capabilities (more is more threatening); and offensive intentions (states that have them are more threatening).<sup>35</sup>

A potential problem with Walt’s theory is that while he notes the direction in which increasing capabilities, proximity, aggressive intentions, and offensive advantage will move the overall level of threat, he provides only limited guidance on how different combinations of the four attributes work together.<sup>36</sup> He notes that “[b]y itself . . . a state’s aggregate power may provide a motive for balancing or bandwagoning,” and he also observes that “even states with rather modest capabilities may prompt others to balance if they are perceived as especially aggressive.”<sup>37</sup> Walt concludes the section on *Different Sources of Threat* with the observation that:

30. See Lazarsfeld 1937; Hempel and Oppenheim 1936; Lazarsfeld and Barton 1965; and Barton 1955. Although the primary purpose of this and the next section is to demonstrate typological techniques, the examples also illustrate some of the advantages of explanatory typologies for qualitative analysis that are mentioned in the preceding section.

31. Lazarsfeld and Barton 1965, 173.

32. Walt 1987.

33. Waltz 1979.

34. Walt 1991, 54, argues that because “capability” in Waltz’s theory is also a composite variable, his expansion of the independent variable does not lead to a loss of parsimony.

35. See Walt 1987, 21–28, and 1991, 54.

36. The four elements can be regarded as independent variables, and the resulting level of threat as an intervening variable, in balance of threat theory. Alternatively, the elements can be seen as level 2 independent variables, and threat as a level 1 independent variable. See Goertz and Mahoney forthcoming.

37. Walt 1987, 23, 25.



**TABLE 2.** *Techniques for compressing property space*

<i>Kind of compression</i>	<i>Operation</i>	<i>Examples discussed in article</i>
<i>Rescaling</i>	Reduce the level of measurement.	Rescaling ordinal dimensions nominally (Walt).
<i>Indexing</i>	Weigh different variables to combine them into a composite index, where the same scores are treated as being equivalent.	Equality of different combinations of threat constituents (Walt).
<i>Logical compression</i>	Eliminate cells produced by impossible or highly improbable combinations of variables.	Offensive advantage requires sufficient capabilities and proximity (Walt). There cannot be two regional hegemon (Elman). Small states and midpowers cannot be unlimited-aims revisionists (Schweller).
<i>Empirical compression</i>	Eliminate empty cells (cells that are empirically empty).	Absence of two multipolar regions, or a multipolar region without an insular state (Mearsheimer).
<i>Pragmatic compression</i>	Collapse contiguous cells if their division serves no useful theoretical purpose.	Deleting proximity as a threat element when using balance of threat theory to analyze the connection between revolution and war (Walt). Reduction from eighteen to eight state types (Schweller).

*Note:* The two reductions by Schweller are from his 1998 typology. The others are from the author's reconstructions of Walt 1987 and Mearsheimer 2001.

By defining the basic hypotheses in terms of threats rather than power alone, we gain a more complete picture of the factors that statesmen will consider when making alliance choices. One cannot determine a priori, however, which sources of threat will be most important in any given case; one can say only that all of them are likely to play a role. And the greater the threat, the greater the probability that the vulnerable state will seek an alliance.<sup>38</sup>

The issue of how to aggregate different levels of the four threat elements can be addressed by following Barton<sup>39</sup> and expanding the elements into a two-dimensional property space.<sup>40</sup> Each cell in the property space represents a different combination of the different potential values of the four variables. As shown in Figure 1, if the elements are treated as trichotomous ordinals there are eighty-one cells ( $3^4$ ). Because this is too large a number to be helpful, different reduction techniques can be employed to reduce the size of the property space.

### *Rescaling*

The number of cells can be reduced by lowering the number of attributes for one or more of the theory's variables represented in the property space. For example, as shown in the comparison between Figures 1 and 2, changing the level of measurement in a four variable model from trichotomous ordinal to dichotomous reduces the number of cells from eighty-one to sixteen.<sup>41</sup> One thing to keep in mind when reducing the number of attributes is that each cell in the typology becomes more inclusive, hence potentially grouping cases which may not fit comfortably together.<sup>42</sup>

### *Indexing*

Barton observes that where multiple attributes "express essentially the same underlying characteristic or have their effects in the same direction" one can "give each category on each dimension a certain weight, and add these together to get index scores for each cell."<sup>43</sup> Again using Walt's balance of threat theory as an example, high capabilities, malign intentions, proximity, and offensive advantage are positively correlated with threat. By scoring the high-mid-low rankings on each of the

38. *Ibid.*, 26.

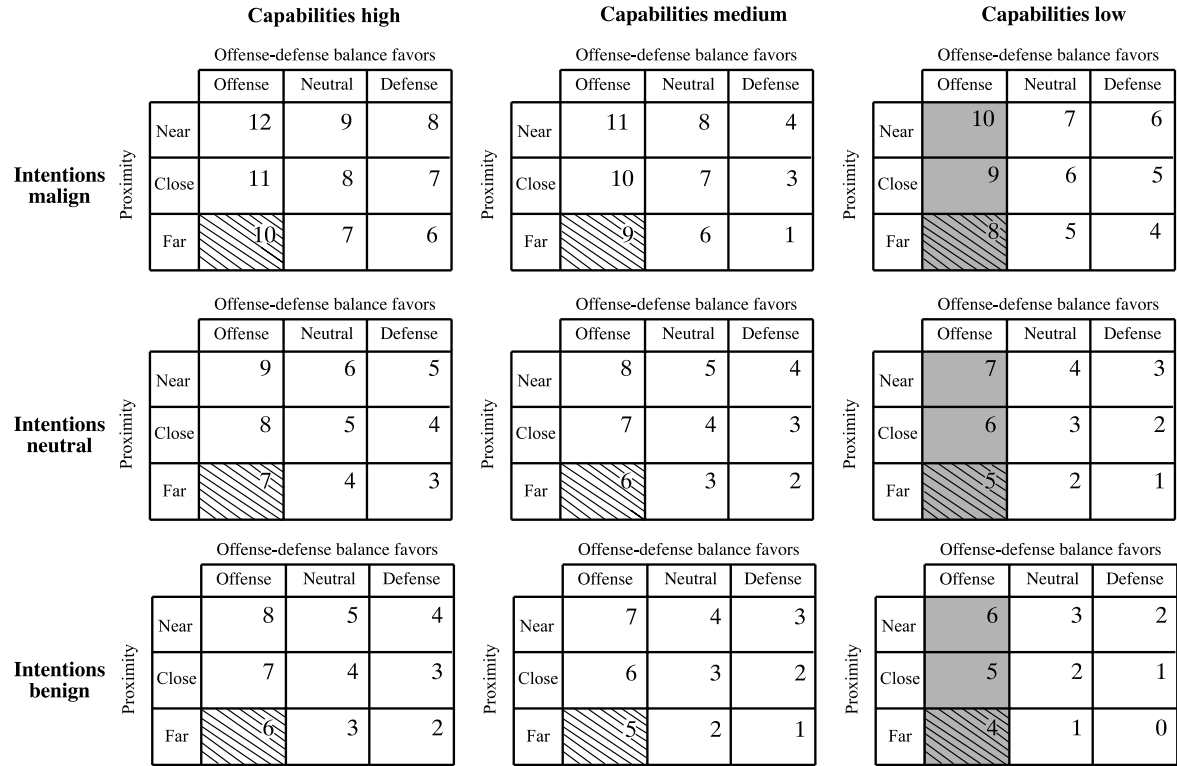
39. Barton 1955.

40. Expansion is described in detail in the following section.

41. On levels of measurement see Stevens 1946, 1951, 23–30, and 1959.

42. For discussions of the closely related issues of conceptual differentiation and stretching, see Sartori 1970; Collier and Mahon 1993; Collier and Levitsky 1997; Collier and Adcock 1999; Sartori 1984; and Gerring 1999. On the connection between concepts and classification, see Hempel 1965a, 138–139, 146–148.

43. Barton 1955, 46.



Notes: (1) *Logical compression*: Offense cannot dominate in the absence of capabilities (cells shaded gray) or proximity (cells with cross-hatch pattern). (2) *Indexing*: Composite numerical scores based on high-mid-low scores of 3, 2, 1 for capabilities and proximity, and 3, 0, -1 for intentions and offense-defense balance.

FIGURE 1. *Walt's composite threat variable*

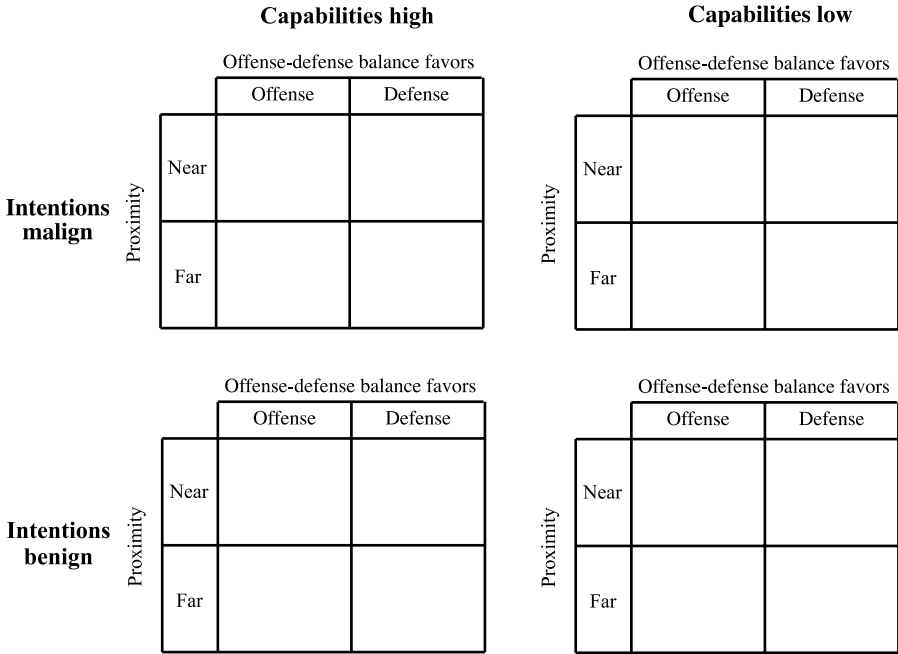


FIGURE 2. *Walt's composite threat variable configured dichotomously*

dimensions, one can arrive at total scores for each cell, that is, for each combination of the four attributes.

An example index is provided in Figure 1, which is based on the decision to weight the high-mid-low ranks on capabilities and proximity as 3, 2, and 1; and intentions and offense-defense balance as 3, 0, and  $-1$ .<sup>44</sup> Hence the uppermost left-hand cell represents a score of  $3 + 3 + 3 + 3 = 12$ . The very bottom right-hand cell represents a score of  $-1 + -1 + 1 + 1 = 0$ . Indexing treats all combinations that receive the same score as equivalent, in effect “folding over the typology thus rendering formerly distant types equal.”<sup>45</sup> Accordingly, in the example laid out in Figure 1, the uppermost right-hand cell and the very bottom left-hand cell both would fall into the cell “Threat Level 6.” As noted in Table 3, this particular compression reduces the number of cells from eighty-one to thirteen.<sup>46</sup>

44. Although the assigned numbers are arbitrary, they do reflect the verbal descriptors for the hypothesized values of each variable. Weak and distant states represent some threat and hence are given low but positive scores, whereas benign intentions and defense dominance are assigned negative scores.

45. Bailey 1994, 28.

46. Obviously, although illustrative, this result applies only to this particular example. The number of cells resulting from the reduction will depend on the weighted scores assigned to the high-mid-low ranks.

TABLE 3. Results of cell reduction through indexing

<i>Threat level</i>	12	11	10	9	8	7	6
<i>Number of cells with score</i>	1	2	3	4	7	10	11
<i>Threat level</i>	5	4	3	2	1	0	
<i>Number of cells with score</i>	10	10	10	8	4	1	

Indexing presents more complex difficulties than its seeming simplicity would suggest. What is the appropriate weight for the high-mid-low rank on each attribute? Do low ranks offset high ranks on other attributes? Are all the attributes equal, or should some be weighted more heavily? Perhaps most importantly, indexing presupposes that equal scores are equivalent. It may be that interaction effects between the different variables render this assumption problematic, particularly if the constitutive elements work through different causal pathways.<sup>47</sup> For example, while Walt expects balancing against high threat to be a prevalent foreign policy behavior, he does not argue that all threats provoke the same responses. He suggests that a state confronting a close neighbor with very high capabilities may bandwagon.<sup>48</sup> By contrast, states are much more likely to balance against high threats that are founded on malign intentions.

Indexing is an admittedly blunt and arbitrary tool, and the results necessarily rest on a host of predicate choices and assumptions. It is also likely that the index will be of limited use, as well as aesthetically unattractive, to a qualitative analyst. However, the assignment of numerical weights to different codings on each dimension, and struggling with whether it is appropriate to assume that equal total scores represent the same outcome, may force the analyst to confront theoretical complexities, ambiguities, and lacuna. In this sense, contemplating reducing a typology using a composite index may be more helpful than the index itself.

### *Logical Compression*

There may be a connection between two or more of the typology's dimensions such that some combinations are logically impossible or highly improbable. If so, one can delete these cells.<sup>49</sup> For example, in Walt's theory, offensive advantage is

47. Barton 1955, 47.

48. Walt 1987, 28–32, and 1991, 53.

49. See Lazarsfeld 1937, 126; and Lazarsfeld and Barton 1965, 173.

clearly related to both proximity and high capabilities.<sup>50</sup> It is unlikely that states that are very far away from each other and/or have low capabilities can possess much in the way of an offensive advantage. Accordingly, the cells representing far-high offense, that is, the bottom left cell in each of the nine  $3 \times 3$  matrices, can be deleted (marked with cross-hatched pattern in Figure 1). Similarly, the cells showing low capabilities–high offense, the far left column in the three  $3 \times 3$  matrices on the right-hand side, can be excised (shaded gray in Figure 1).<sup>51</sup> It should be noted that logical compression is a characteristic of the underlying theory, and it will almost always be an option to add an auxiliary assumption that will render an otherwise unfeasible prediction possible. For example, the three instances of logical compression noted in Table 2 are all revisable, allowing their otherwise empty cells to be filled. Walt’s argument that close proximity and high aggregate capabilities are necessary but not sufficient conditions for high offensive capability can be modified by adding the auxiliary assumption that weak and distant states have easily deliverable weapons of mass destruction. My extended version of Mearsheimer’s argument suggests that because a regional hegemon will balance extra-regionally, there cannot simultaneously be two hegemons. This prediction can be amended by assuming that regional hegemons are prone to miscalculation and buck-passing. Schweller’s suggestion that only great powers can be unlimited revisionists can be adjusted by assuming that small states can be sufficiently driven by internal appetites that they do not mind courting certain destruction. In all three examples, the theory can be reconfigured to “rescue” one or more cells that are initially amenable to logical compression.

### *Empirical Compression*

Some combinations of variables may be logically possible or not highly improbable, but there may nevertheless be no empirical examples of those combinations. If so, one may be able to delete these cells from the typology.<sup>52</sup> This method of reduction raises a number of concerns. First, the analyst would need to have complete knowledge of the population of cases to make a determination that some cells were empty and could be dispensed with. Second, each cell represents a combination of codings on a number of dimensions. A mistake in coding just one of those dimensions would depopulate an otherwise occupied cell. Third, the technique conflicts with one of the benefits of using property space that derives from its representation of causal possibility: the discovery of counterfactual propositions. Reducing the space to empirically present cells undercuts that possibility. Finally, it bears mentioning that empirical compression does not imply a direct relationship between cell population and the utility of a cell in a typology. For

50. Walt 1987, 24.

51. See the discussion below on Schweller 1998 for another example of logical compression.

52. See Bailey 1994, 27; Barton 1955, 46, 49; and Marradi 1990, 144.

example, an outlier cell, with a single case, may provide a severe test of the theory.

### *Pragmatic Compression*

Using pragmatic compression, “certain groups of combinations are contracted to one class in view of the research purpose.”<sup>53</sup> In the context of Walt’s balance of threat theory, diverse applications are likely to focus on or exclude different threat elements. For example, in Walt’s subsequent application of the theory to analyze the connection between revolutions and war, he notes:

In earlier presentations of balance-of-threat theory, I included geographic proximity as another element of threat. Because a state’s geographic location is not affected by a revolution, I have omitted it from this discussion, although I would expect states to be more sensitive to revolutions near their own borders than to ones at a distance.<sup>54</sup>

Similarly, other theorists revisiting an expanded typology based on Walt’s composite threat are likely to focus on cells that cover hypotheses of interest.<sup>55</sup> For example, offense-defense theorists would retain cells that fully represent the variables associated with their approach, and accordingly they might settle for a compression of cells on the dimension of intentions.<sup>56</sup> By contrast, theorists interested in showing that intentions are causally important and manipulable would want the reduced typology to keep that feature.<sup>57</sup> Scholars working on asymmetric conflicts, where strong and weak states are engaged in conflict, would prefer the typology to represent power disparities.<sup>58</sup>

In sum, many-celled typologies can be reduced in size using one or more of these techniques. These compressions are not cost-free, and some come freighted with significant analytic consequences. For instance, rescaling or simplification of dimensions may lead to the unfortunate grouping of cases; empirical compression discounts the value of using the property space to construct counterfactual propositions; and indexing “washes out” the potential diversity in seemingly equivalent

53. Lazarsfeld and Barton 1965, 174. See also Lazarsfeld 1937, 128; Bailey 1994, 27; Barton 1955, 45–46; and Marradi 1990, 144.

54. Walt 1996, 19, n. 3. In effect, variables that were independent variables in *The Origins of Alliances* are reconfigured as intervening variables in *Revolution and War*. Because it does not vary with revolution, Walt has no interest in proximity in the context of this particular study. It should be noted that Walt’s argument is not wholly conclusive for removing proximity from the *Revolutions and War* property space. As the last clause of this quotation suggests, even if it does not vary with the main independent variable, proximity remains a threat determinant. Alternatively, contra Walt, proximity could be seen as varying with revolution if an expansionist revolutionary state encroaches on intervening territory.

55. See the discussion on Schweller 1998 below for another example of pragmatic reduction.

56. See, for example, Lynn-Jones 1995 and 2001; Biddle 2001; and Glaser and Kaufmann 1998.

57. See, for example, Glaser 1994/1995 and 1997; Mastanduno 1997; and Midford 2002.

58. See, for example, Paul 1994.

causal pathways. The point is not that these techniques should not be used, but that they should be employed with an appreciation of the associated costs.

Explanatory typologies can be constructed directly from a theoretical statement. They can also be rebuilt from analyses that already use a typology that has previously been minimized. The next section considers the technique of expanding a property space from such a partial typology.

### Expanding Property Space

Expansion (what Lazarsfeld calls “substruction”)<sup>59</sup> takes an underspecified typology, or one that is implied from the use of a subpopulation of its types, and provides a full account of the associated property space by “reverse engineering” the classification. The analyst works backwards to lay out the property space from which the partial typology is derived, and the type of reduction technique that was used to produce it. As Lazarsfeld notes, the procedure does not assume “that the creator of the types really had such a procedure in mind. It is only claimed that, no matter how he actually found the types, he could have found them logically by such [an expansion].”<sup>60</sup>

Expansion allows analysts to spot important combinations of attributes that were overlooked in the partial typology, and to draw attention to cases that need further attention.<sup>61</sup> The procedure may also help theorists to make explicit the assumptions that were used by the original analyst to suppress particular combinations.<sup>62</sup> The technique can be used to draw out the implications of a theorist employing outstanding “types” with different attribute clusters, or to expand a formal but reduced typology back to its complete specification.

Mearsheimer’s *The Tragedy of Great Power Politics* provides an opportunity to demonstrate the expansion of a larger property space from the informal use of types that are described as possessing particular attributes.<sup>63</sup> His theory predicts that great powers fear each other; that they can rely only on themselves for their security; and that the best strategy for states to ensure their survival is sophisticated maximization of relative power.<sup>64</sup> These predictions are modified by geographical context, especially the stopping power of water. Noting that distance

59. Lazarsfeld 1937, 132.

60. Ibid.

61. Barton 1955, 53.

62. Ibid., 50.

63. Mearsheimer 2001. By contrast, Schweller’s typology, which is discussed in the next section, could be used as an example of reinflating a formally reduced typology. Schweller’s pragmatically reduced eight cells could be rebuilt to the original eighteen to see if this differentiation provides additional explanatory leverage.

64. Mearsheimer 2001, 32–36. Mearsheimer does not predict that states are “mindless aggressors so bent on gaining power that they charge headlong into losing wars or pursue Pyrrhic victories.” Ibid., 37.



TABLE 4. *Mearsheimer's The Tragedy of Great Power Politics*

	<i>Exemplar</i>	<i>In-regional behavior</i>	<i>Extra-regional behavior</i>
<i>Continental great powers</i>	Germany	Attempt regional hegemony while balancing against other states.	Unclear. Case studies suggest balance against any would-be regional hegemon.
<i>Island great powers</i>	Great Britain	Balance against any would-be regional hegemon.	Unclear. Case studies suggest balance against any would-be regional hegemon.
<i>Regional hegemon</i>	United States	Balance against other states to maintain regional hegemony.	Balance against any would-be regional hegemon.

makes global hegemony virtually impossible, Mearsheimer moves his focus to the regional level. The best that a state can reasonably hope for is (1) to be a regional hegemon; and (2) to be the only regional hegemon.<sup>65</sup> The stopping power of water also makes island states such as Great Britain relatively safe and allows them to take a less interventionist role. Accordingly, while the theory applies to great powers in general,<sup>66</sup> Mearsheimer distinguishes between different kinds of great powers: continental great powers acting in their own region (for example, France and Germany); insular great powers acting in their region (for example, Great Britain); and regional hegemon acting in other regions (for example, the United States).

Laying out the explanatory typology implicit in *The Tragedy of Great Power Politics* demonstrates a lacuna in Mearsheimer's theory and provides an opportunity for additional analytic moves.<sup>67</sup> As displayed in Table 4, the kinds of state are represented in the rows, and the columns show whether the state is acting in its own or another region: the content of the cells are the states' predicted intra- and extra-regional behavior. Continental great powers such as Germany from 1862 to 1945 will seek regional hegemony in their own neighborhoods when the distribution of capabilities makes such ambitions feasible.<sup>68</sup> When they are unable to achieve this dominance, such states will still maximize their relative power to the

65. *Ibid.*, 140–45.

66. *Ibid.*, 5, 403, n. 5.

67. The discussion of expansion that follows—and especially of cells (13) and (14) of the resulting typology—is drawn from Elman 2004, which is mainly concerned with European responses to a rising U.S. in the nineteenth century. Elman 2004 does not, however, discuss cells (11), (12), (16), (17), and (18), which are covered in this section.

68. Mearsheimer 2001, 181–209.

extent possible by appropriating resources from other great powers while blocking other states' similar ambitions. The second kind of great power is an insular state—"the only great power on a large body of land that is surrounded on all sides by water."<sup>69</sup> Where located in a region containing other great powers that are vying for regional dominance, such island states will balance against the rising states rather than try to be regional hegemon themselves. Accordingly, states such as the United Kingdom act as offshore balancers, intervening only when a continental power is near to achieving primacy.<sup>70</sup> The third kind of great power in Mearsheimer's theory is one that has already achieved regional hegemony. Such great powers are status quo states that seek to defend the current favorable distribution of capabilities.<sup>71</sup> The only example in the last two hundred years is U.S. dominance of the North American continent.<sup>72</sup>

Exploring the typology implicit in *The Tragedy of Great Power Politics* demonstrates a key omission in Mearsheimer's discussion of extra-regional behavior. While plainly predicting that regional hegemon will be robust offshore balancers, Mearsheimer is much less clear on whether the same holds true for continental and island great powers. Although suggesting that great powers "strive to prevent rivals in other regions from gaining hegemony,"<sup>73</sup> the discussion following that statement focuses almost exclusively on the behavior of regional hegemon. Elsewhere the volume suggests that great powers at least try to balance against rising hegemon in other regions.<sup>74</sup> The unclear treatment of extra-regional great power behavior is more than just a footnote for Mearsheimer's theory. The sole success story of the past 200 years is the United States. The only plausible balancers that might have prevented its rise were the European great powers. Without explicitly addressing the reasons for their failure to contain the United States, the theory is unable to determine whether its achievement of regional hegemony is evidence that supports sophisticated power maximization as a sensible policy prescription.

The explanatory typology in Mearsheimer's version of offensive realism can be further extended and clarified by undertaking three separate operations, which together result in a more complete property space: adding a fourth category of state; expanding the typology to include different extra-regional contexts; and working through the logical implications of the theory for each of the cells in the larger property space.

Mearsheimer's account of offensive realism distinguishes between three kinds of state: continental great powers, island great powers, and regional hegemon. This list is missing a fourth, important category: a great power that is the only local state with significant resources. Under these circumstances, such a state will

69. *Ibid.*, 126.

70. *Ibid.*, 126–28, 261–64.

71. *Ibid.*, 42.

72. *Ibid.*, 141.

73. *Ibid.*

74. *Ibid.*, 251.

try to expand to dominate the region, even if it is an island state. While Mearsheimer does not name this category, he does describe at least one example in his case study narrative, that of Japan in Northeast Asia between 1900 and 1945.<sup>75</sup> Two other examples that can be coded as fitting in this category are the Soviet Union in Europe after World War II, and the United States in the midnineteenth century. Each was the only state of any consequence in its region, but neither had yet sequestered and extracted resources that dwarfed those held by continental powers in other regions.

As well as adding the fourth category of sole great power, the property space can also be enlarged by adding the different strategic circumstances that a state might face when it is operating outside of its own region. The process takes the different categories of state, and recasts them as extra-regional contexts. For example, a state that is one of several continental powers in its region might be operating in another region that has several continental powers with or without an island state, a single great power, or a regional hegemon. This expansion adds four columns for “other regions,” resulting in an additional sixteen cells.

The expanded property space is shown in Table 5. The cells in the  $4 \times 5$  matrix that are shaded gray can be deleted using empirical compression. In the modern era there have been no cases of multipolar regions without an insular offshore power. Accordingly the second column—cells (5), (6), (7), and (8)—can be deleted in its entirety. Similarly, there have been no examples of multiple multipolar regions, and hence cells (9) and (10) in the third column can also be deleted. Neither have there been cases of two isolated great powers, so cell (15) is empty.<sup>76</sup> The property space can also be reduced using logical compression. Offensive realism predicts that a regional hegemon will intervene to prevent other states from achieving regional dominance. If that prediction is accurate, one will never encounter a situation in which there are two regional hegemons in the world. Hence, one can use logical compression to delete cell (20).<sup>77</sup> We are left with eight extra-regional cells: (11), (12), (13), (14), (16), (17), (18), and (19). The remaining property space exhaustively presents the offensive realist combinations that are likely to be populated by cases in the modern era.

75. Note that Japan belongs in this category, even though it is also an island (and therefore potentially an insular) state. If there are no powerful states on the continent, there is no defensive force to multiply, and hence water has no “stopping power.” Accordingly, an insular state that is the only great power in the region will eschew the modesty of offshore balancing and seek regional dominance for itself. See Mearsheimer 2001, 264–65.

76. It would be possible to make a weak argument that U.S.–Japanese relations between 1880 and 1900 might populate this cell, because Japan could be coded as having reached great power status, and the United States as not yet achieving regional hegemony. This is the only modern dyad that might remotely fit in cell (15). See Ragin 2000, 80, on setting criteria for determining whether a cell is empirically empty.

77. If Mearsheimer is correct that balancing is inefficient, and regional hegemons suffer from the same inefficiencies as other great powers, then cell (20) should instead be deleted using empirical compression.

TABLE 5. Expanded typology of state behavior predicted under different distributions of power

		STATE IS ACTING IN				
		Its own region	Another region that has			
			More than one continental great power (no insular state)	More than one continental great power (including an insular state)	Only one great power	Hegemon
STATE IS	<i>One of multiple great powers in region</i>	(1) Maximize relative power (achieve regional hegemony if possible) while blocking other continental states' similar ambitions Germany, Italy	(5)	(9)	(13) Indeterminate. Possibly balance against inevitable hegemonic bid France toward U.S. in 19th century	(17) Indeterminate. Possibly balance to undermine hegemony France toward U.S. in early 20th century
	<i>Insular state (and one of multiple great powers in region)</i>	(2) Offshore balance against any rising hegemon UK in Europe	(6)	(10)	(14) Acquiesce to inevitable hegemonic bid UK toward U.S. in 19th century	(18) Accept, and buck-pass to, regional hegemon UK toward U.S. in 20th century
	<i>Only great power in region</i>	(3) Seek regional hegemony Japan in Asia 1900–45; U.S. in North America 1800–1900; Soviet Union 1946–88	(7)	(11) Focus on achieving hegemony at home, so minimal efforts in other regions U.S. toward France, Germany and Russia in mid-19th century	(15)	(19) Preemption: attempt to neutralize hegemon in advance of their anticipated balancing Japan toward U.S. in mid-20th century
	<i>Regional hegemon</i>	(4) Maintain hegemony U.S. in North America after 1900	(8)	(12) Buck-pass to the region's insular state; offshore balance against rising hegemon as last resort U.S. in Europe, 1917 and 1941	(16) Balance against inevitable hegemonic bid U.S. toward Japan in Asia 1940–45; toward Soviet Union 1946–88	(20)

Note: Cells shaded gray are amenable to empirical compression; the cell shaded black can be logically compressed.

The final operation in developing this larger property space is to work through offensive realism's logic for each of its cells. While some of the predictions overlap with Mearsheimer's, others disagree. Mearsheimer argues that the stopping power of water makes global hegemony impossible, with the corollary hypothesis that the best a state can hope for is to be the only regional hegemon anywhere in the world. But a second corollary of a regionally focused offensive realism is that local power considerations will dominate a state's calculations. This second corollary makes little difference when it comes to in-regional behavior, and hence Mearsheimer's and the extended version of the theory overlap in their predictions for states' in-regional behavior. Accordingly, cells (1), (2), and (4) of the larger typology agree with Mearsheimer's predictions for the local behavior of continental and island great powers and regional hegemons. While the extended version adds the in-regional behavior of a sole great power, the prediction in cell (3) that states such as the United States will expand to fill the vacuum in their own region is entirely consistent with the thrust of Mearsheimer's other in-regional predictions.

Because the extended version of offensive realism gives precedence to local power considerations, however, it clarifies Mearsheimer's predictions regarding extra-regional behavior. Island states should not balance against rising states in other regions. As shown in cells (14) and (18), a regionally focused version of offensive realism predicts that island states have positive incentives to support, not block, the emergence of a regional hegemon in another neighborhood. Taking Anglo-American relations as an example, Britain's main concern should have been of a continental hegemon emerging in its own region. Because an American regional hegemon would share Britain's fear of a European hegemon, the British could rely on the United States to serve as balancer-of-last-resort. Hence, conducting an extra-regional campaign against the Americans made no sense, because it would misdirect British resources away from local balancing, as well as rob the island state of an inevitable future ally.

While Mearsheimer is also unclear on whether continental great powers engage in extra-regional balancing, the extended version of offensive realism suggests that this ambiguity is more justifiable. As noted in cells (13) and (17), structure is indeterminate, providing cross-cutting incentives for and against extra-regional intervention by continental states. Although a continental great power may not be in favor of another state achieving or retaining regional hegemony elsewhere, it will not care enough to deflect resources that could otherwise be used in its bid for local dominance, commit resources that should be used to block another local power from achieving regional hegemony, or so provoke the extra-regional would-be hegemon that it throws its weight on the side of the state's local enemies. Offensive realism makes no determinate predictions about what a continental state will do regarding an extra-regional rising great power or hegemon, unless it folds in much more information about local conditions.

Cell (11) suggests that an isolated state will largely ignore what is going on elsewhere in the world to concentrate on achieving regional hegemony in its own backyard. The expectation is that the state will forego using force abroad, instead

choosing to consolidate its hold over the region in which it is situated. The relative quiescence of the United States outside of the North American continent in the nineteenth century fits the prediction made in this cell. Cell (19) provides an important exception to this “no extra-regional involvement” rule: the would-be hegemon has a strong incentive to attempt to neutralize a regional hegemon elsewhere, to forestall their anticipated offshore balancing. Japan’s preemptive attack on the United States in 1941 might fit in this cell.

Cells (12) and (16) cover cases in which a regional hegemon acts to prevent a state from achieving dominance in another region. Cell (12) looks at cases where the other region has multiple great powers and an insular state. Offensive realism anticipates that when a continental great power threatens to dominate the other region, the extra-regional hegemon should buck-pass to the in-region insular state. When it is clear that the insular state is not up to the job, the hegemon will intervene as a balancer-of-last-resort.<sup>78</sup> The U.S. slow-motion responses to threats of German hegemony in Europe in 1914 and 1939 fit this pattern. Cell (16) refers to cases in which a regional hegemon offshore balances against an isolated great power. Because there are no other partners to whom the regional hegemon can buck-pass, the expectation is that they will take early and vigorous action. The immediacy of the U.S. reaction to the Soviet Union after World War II can be explained by the exhaustion of the British Empire, and by the concomitant absence of a credible partner to which the United States could buck-pass.<sup>79</sup> U.S. balancing against Japan in Asia from 1940 onwards also fits in cell (16).

Summarizing the steps I have taken so far, the process took three categories of states described in Mearsheimer’s theory and added a fourth: sole great powers. These categories were then used as the basis to differentiate between extra-regional contexts. The resulting twenty cells were partially compressed using a combination of logical and empirical compression. The remaining property space exhaustively presents the offensive realist combinations that are likely to be populated by cases in the modern era. This extended property space can be used to suggest, *inter alia*, the structural conditions that made U.S. regional hegemony possible, and why other states are very unlikely to succeed in the near future. As noted in Table 6, a state is most likely to achieve regional hegemony in the modern era if it is the only great power in its neighborhood; if continental great powers elsewhere decline to intervene; and if there is no regional hegemon elsewhere in the world. If these three conditions are met, then local supremacy is possible.

In the preceding sections, I describe and demonstrate techniques for expanding and compressing the cells that constitute their associated property spaces. In the next section, I consider two potential problems with using explanatory typologies. The first is a form of reification, where the labels given to a typology’s categories displace the underlying theory from which the typology was derived. The second

78. *Ibid.*, 141.

79. *Ibid.*, 328.

**TABLE 6.** Which states attempt regional hegemony and which other states try to block them

<i>State attempting regional hegemony</i>	<i>Possible opposition</i>
One of multiple continental great powers in region (cell 1)	Other continental powers (cell 1); insular state (cell 2); and (if any) extra-regional hegemon (cell 12)
Only great power in region (cell 3)	Continental powers from another region (cell 13), and (if any) extra-regional hegemon (cell 16)

is where empirical puzzles for a theory are disguised by adding cells that name, but do not explain, the aberrant predictions.

### **Pitfalls in Property Space: Reification and Puzzle Relabeling**

Schweller's *Deadly Imbalances*,<sup>80</sup> a leading work in the neoclassical realist research program, is an unusually explicit use of typologies in the study of international relations.<sup>81</sup> Although it is a welcome example of the self-conscious application of typological techniques, Schweller's analysis also illustrates some potential problems.

Building on the classical realist tradition, Schweller constructs a typology based on two dimensions: (1) the state's relative capabilities; and (2) its interests, expressed as its view of the current distribution of power, that is, whether it supports the status quo. Relative capabilities are measured as a ratio variable, with "each Great Power . . . weighted according to its relative share of the total resources of the major-power subsystem."<sup>82</sup> The ratio scale is then reconfigured into the ordinal categories of poles, lesser great powers, midpowers, and small states. The interests dimension captures the extent to which units seek to undermine, acquiesce in, or support the current international system.<sup>83</sup> This is conceived of as a continuous variable, but is then rearranged ordinally into the categories: unlimited-

80. Schweller 1998.

81. Rose 1998. This brief summary does not include a discussion of tripolarity, an important part of Schweller's explanation for World War II. It was excluded as not being directly germane to the discussion of Schweller's property space. This decision is supported by the fact that Schweller himself published separate stand-alone articles of his typological material and the tripolarity part of his argument. See Schweller 1993 and 1994.

82. Schweller 1998, 17.

83. *Ibid.*, 23–24.

aims revisionists, limited-aims revisionists, indifference, support status quo/ accepts limited revision, and strongly supports status quo.

Schweller then takes the twenty cells produced by his two ordinal dimensions and compresses them using reduction techniques.<sup>84</sup> The two cells in the bottom left hand of the typology are logically eliminated because, he argues, that it is impossible for small states and midpowers to be unlimited revisionists.<sup>85</sup> The remaining eighteen cells are compressed through the pragmatic merging of contiguous cells. For example, for states that are indifferent to the current distribution of power, the relevant distinction is between those that could have helped preserve or upset the status quo but chose not to, and those that could never have made a difference. Because only great powers or lesser great powers have the wherewithal to weigh in the balance, Schweller combines both cells into the single type “ostrich.” The smaller indifferent states are collected with other nonrevisionist minor powers into the category “lambs.” Similarly, limited aims revisionists are divided into opportunistic kingmakers with the capabilities to support unlimited revisionists, and lesser great powers and smaller states that by themselves only make an insignificant contribution to the distribution of capabilities. Hence, their opportunism comes in the form of bandwagoning with wolves. Taken together, these pragmatic compressions reduce the number of remaining cells from eighteen to eight (see Figure 3).

In a powerful rhetorical move, Schweller names these eight state types after animal species that, at least in the popular imagination, exhibit similar behaviors to those predicted by his theory.<sup>86</sup> Powerful status quo “lions” steadfastly protect their interests against competing predators. “Doves” are powerful but peaceful states, willing to acquiesce to moderate demands to appease legitimate grievances. “Ostriches” are powerful enough to respond to threats, but choose instead to play a limited role. “Owls and hawks” strongly support the status quo, but unlike lions do not have the means to do so by themselves. “Lambs” are weak states that have either positive or neutral views of the current international system. They are likely to fall victim to predation. The three categories of revisionist states are: unlimited aims “wolves” that seek dominance at any cost; “foxes” that are first-ranked powers using cunning and king making to snap up easy gains; and “jackals,” second-ranked powers that seek to profit from the wolves’ indiscriminate aggression. Schweller then operationalizes power and interests, and shows where different states fall in each category in the period before World War II (see Figure 4).

Although an important explicit use of typological techniques, Schweller’s approach also points to some potential problems. My reading of Schweller is that he intends to construct an explanatory typology, in which different values of the theory’s two variables (together with its constants, which include the anarchic

84. *Ibid.*, 84–89.

85. As noted above, it would be possible to introduce auxiliary hypotheses that would allow for small powers to be unlimited revisionists.

86. Schweller 1998, 84–89.



Capability	Poles	Wolves	Foxes	Ostriches	Doves	Lions
	Lesser great powers					Owls/Hawks
	Mid powers		Jackals	Lambs		
	Small states					
		Unlimited-aims revisionists	Limited-aims revisionists	Indifference	Supports status quo/Accepts limited revision	Strongly supports status quo
		<b>Interests</b>				

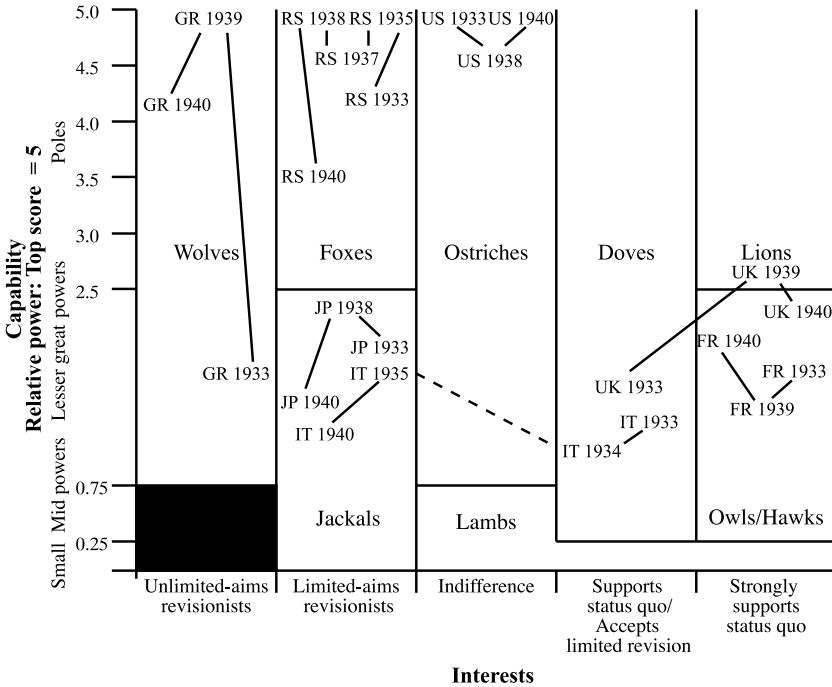
Note: The cells shaded black can be logically compressed.

Source: Schweller 1998, 85.

**FIGURE 3.** Schweller’s balance-of-interests typology

international system and unit rationality) produce different predictions of state behavior. While acknowledging and applauding the persuasive leverage gained from giving his types animal names that strongly reflect the expected state behavior, it is likely that this naming encourages a form of reification.<sup>87</sup> Schweller’s vivid labeling runs the risk of the cells ceasing to be regarded as “containers” of predictions made by the underlying theory: the labels themselves become free-standing “explanations” for state behavior, rather than the theory from which the property space was derived. To put it another way, in the context of an explanatory typology, reification occurs when a case is “explained” because one attaches a name to it, not because a theory that one has deemed valid is seen as being applicable to it. While I have no doubt that Schweller is always acutely aware of the complex and nuanced theory underlying his typology, I have less confidence in scholarly visitors to his zoo who read the typology at one remove.

87. On the dangers of reification see Bailey 1994, 15; Tiryakian 1968, 179; and McKinney 1954, 148–49.



Notes: (1) The cells shaded black can be logically compressed. (2) FR = France. GR = Germany. IT = Italy. JP = Japan. RS = Soviet Union.

Source: Schweller 1998, 90.

FIGURE 4. Cases in Schweller's typology

A different concern is that five of the seven types that are of any explanatory significance in Schweller's typology vary on the interests axis. So the answer to the question "why do states behave like they do?" would largely be answered based on how strongly they support or oppose the status quo. There are two related issues at play here: the nontautological operationalization of intentions; and explanation versus post-hoc labeling. The first issue goes to whether it is possible to measure state interests without referencing the state behavior that one is trying to explain. Intentions are much harder to gauge than capabilities, and one cannot use the dependent variable to operationalize them. It is obviously of little value to say that one knows Germany was an unlimited-aims revisionist because it unwisely invaded the Soviet Union and then use the coding "unlimited-aims revisionist" to explain the attack. This can be construed as a data problem and hence as potentially solvable if freestanding measures of intentions are available.

The second and more difficult challenge is whether Schweller's typology is explanatory, or is instead a form of semantic relabeling that displaces questions without answering them.<sup>88</sup> Although framed here in the context of increasing the number of cells in a property space, this issue arises whenever theories are amended to cover known anomalies.<sup>89</sup> Philosophers of science worry that an amendment to a theory designed to address a puzzle may just be a move to protect it from falsification, and not real scientific progress.<sup>90</sup> Typically, a concept is redefined, or an auxiliary hypothesis is added, to allow the theory to predict the anomaly.

Consider the property space expansion covered in the problem shift from Waltz's 1979 neorealism to Schweller's 1998 neoclassical realism. Insofar as Waltz's international political structure constrains great powers' behavior, they are likely to be status quo great powers.<sup>91</sup> By explicitly incorporating nonsecurity motives into the menu of possible state preferences, and by including lesser powers, Schweller expands the number of cells from one to eight.<sup>92</sup> The problem is that the expansion may be labeling—not explaining—the behavior that neorealism is unable to address. If this were the case, greedy behavior by lesser states would be incorporated by allowing for a category that describes greedy behavior by lesser states.

One way of addressing this problem (that is, to demonstrate that Schweller is engaging in more than just a relabeling exercise) is to adopt a form of what Musgrave calls the historical approach to confirmation of a scientific theory.<sup>93</sup> The historical approach suggests that one cannot determine whether evidence supports a theory solely on the basis of whether it “fits” the current iteration of the theory. It is not enough to ask whether the theory covers known anomalies. It is also necessary to track the trajectory of a theory as it develops, and ask whether amendments did more than just relabel empirical puzzles. In the context of Schweller's

88. Vasquez 1997 makes a similar critique.

89. This kind of “iteration” between theory and evidence is often prescribed (see, for example, Bates et al. 1998, 16; and Morrow 2002, 187–88) and hence the problem is likely to arise often.

90. The best-known discussion of this issue is Lakatos 1970. See also Elman and Elman 2002 and 2003.

91. This was the central insight in Schweller 1996.

92. Note that Waltz's (1979, 72) theory “is written in terms of the great powers of an era.” Hence all the states in the theory would be on the top line (that is, he does not differentiate between differentially endowed poles: a state is either a great power and therefore a pole, or it is not). In addition, because structural constraints discourage power maximizing behavior, in the absence of untheorized nonstructural motives, Waltz's great powers all fall in the single, top right-hand cell in Schweller's typology.

93. Musgrave 1974, 3, 7. See also Worrall 1978b, 321; and Mayo 1996, 254–56. It should be noted that the historical approach to confirmation looks for different categories of predictions, not evidence that predicted values of the same dependent variable are repeated in additional cases. To be sure, recurring tests of the same proposition are valuable because they offer evidence about whether a prediction is empirically accurate. As Jervis (1985, 146) notes, “Scholars often look at many cases to see if a proposed generalization fits the data. [But t]his is a form of confirmation, not the discovery of new facts.”

typology, the question would be whether the seven new categories provide additional value, signaled by the prediction of novel facts.<sup>94</sup>

A detailed consideration of whether Schweller's theoretical amendments provide nontautological operationalizations of intentions or make novel predictions goes beyond the purposes of this article, but it should be noted that his more recent work makes considerable advances on both fronts. For example, Schweller's current book project investigates the domestic political reasons for why states react to external threats, and in particular for why they sometimes fail to respond with appropriately vigorous balancing.<sup>95</sup>

## Conclusion

In this article, I have pursued three objectives: (1) to argue that explanatory typologies are powerful tools in the qualitative study of international politics, and that they are likely to be most valuable when scholars self-consciously employ typological techniques; (2) to build on Lazarsfeld and Barton to provide an account of available techniques, an accessible vocabulary to describe them, and concrete examples of how the procedures can be applied; and (3) to argue that scholars using typologies must be mindful of the risks of reification and puzzle relabeling.

The five forms of typological reduction demonstrated here are complementary means to compress a many-celled property space into a more manageable configuration. Each of the techniques comes with associated costs. Rescaling a property space may group disparate cases. Indexing attaches numerical scores to unlike variables, and asserts that equal scores reflect equivalent outcomes. Logical compression is perhaps the least problematic of the five techniques, but its availability depends on the underlying theory. Even where it is appropriate, not many cells may be deleted. For example, logical compression deleted only one of the cells in the expanded property space representing Mearsheimer's typology, and only two in Schweller's typology. In addition, logical compression can be reversed by adding auxiliary hypotheses to the underlying theory. Empirical compression is likely to be more generally applicable, but has much greater data requirements, is susceptible to measurement error, and undercuts counterfactual speculation. Finally, pragmatic compression's extreme flexibility allows for a wide range of different configurations, but has the drawback that the typology is likely to be limited to

94. Philosophers of science disagree on which standard of novelty to apply, that is, they differ on the answer to the question: "novel compared to what?" Potential answers to that question include: strict temporal novelty, Lakatos 1970, 118; Zahar 1973, 101; Worrall 1978a, 46, 66, n. 7; Frankel 1979, 24; Gardner 1982, 2; Nunan 1984, 275; and Hands 1991, 96; new interpretation novelty, Lakatos 1970, 188; Koertge 1971, 171, n. 5; Musgrave 1974, 11; Nunan 1984, 275; and Carrier 1988, 20; heuristic novelty, Zahar 1973, 101; and Lakatos and Zahar 1975, 376, n. 65; and background theory novelty Musgrave 1974, 15–16; 1978, 185; Worrall 1978b, 321–22; and Mayo 1996, 208.

95. Schweller forthcoming.

the immediate research purpose at hand. In one sense this becomes less problematic as the techniques are used more self-consciously, since a pragmatically compressed space can be reexpanded if the research purpose changes.

The expansion of property space from types with particular attributes, or from a previously reduced typology, provides theorists with an opportunity to find important combinations that were overlooked in the original analysis, and to focus attention on cases that require additional attention. As the reconstruction of the typology associated with Mearsheimer's *The Tragedy of Great Power Politics* shows, expansion usually also requires some compression before the reinflated property space can be sensibly used. Here, cutting the number of extra-regional cells by half allows theorists to focus on the remaining eight cells to find phenomena of interest.

Because explanatory typologies are derived from underlying theories, they should be permanently open to being reconfigured as the theories change. This suggests two dangers. First, cell names should not become so reified that scholars lose sight of the underlying theory from which the explanatory typology was derived. Second, redrawing a property space to accommodate an empirical anomaly, in effect finding a cell it can call home, will not always be evidence of a constructive theoretical amendment. The historical approach to confirmation suggests that some further value should be added.

While international relations theorists commonly employ explanatory typologies in their analysis of international politics, the subfield has not paid sufficient attention to the logic that underlies and justifies that usage, or to the different techniques that are available for expanding and compressing property space. Explanatory typologies are powerful tools, and a more self-conscious approach will encourage rigor, enhance transparency, and increase the likelihood of producing cumulative results.

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