Are theories of conflict improving?

Using propositional analysis to determine the structure of conflict theories over the course of a century

Dr Steven Wallis[1]
1 Foundation for the Advancement of Social Theory

Abstract

We live in a world where war rages between nations, where revolution erupts within nations, where global terrorism is the norm, where new forms of conflict are emerging on the internet, and where class struggle is exacerbated by rising levels of income inequality. The very existence of these ongoing problems suggests that we do not have the highly effective theories needed to deal with them. In seeking to improve our theories, previous scholars have claimed that theories with a higher level of structure would be more effective. However, they did not provide a useful measure of that structure. In the present paper, Propositional Analysis (PA) is presented as an emerging methodology for determining the structure of theories with some level of objectivity. Using PA, this article investigates the change in structure of theories of conflict over a century-long span of time. The outcomes of these analyses suggest the need for new standards for creating theory, integrating theories, and choosing theory for research and/or practice. This study shows that our theories are not evolving toward a higher level of structure. Instead, the level is nearly stable. These results suggest a new understanding as to why the field of conflict theory has not increased in relevance and usefulness. And, as a result, suggests new directions for accelerating the improvement of theories of conflict. While this is a small study, it is expected that these results and insights may be generalized to the broader field of sociology.

Introduction

Sociology, like society around it, is in crisis[2]. The problems of the world continue to grow while our ability to remedy them does not seem to be improving. This suggests a problem of theory. That is to say, we do not have sociological theory that is sufficient to understand these problems[3,4]. Nor is that theory of sufficient usefulness to suggest practical or reliable solutions to those problems. This raises two key questions about sociological theory and indeed the relevance of sociology as a science. First, how do we quantify what constitutes an advance in theory and second, is sociological theory advancing?

Of course, there are standards of rigor in research so that we can reasonably say that a useful theory is one that is based on rigorous empirical analysis. These norms of sociological research should not be overlooked or discarded. However, our lack of highly useful theory suggests that the existing standards are insufficient. In the present paper, I do not seek to supplant existing standards, I seek to supplement them in order to improve the relevance of sociology and improve the human condition.

In the present paper, I draw on recent advances in the scientific study of conceptual systems — a sub-field of

cognitive systems science[5]. Understanding our conceptual systems (like understanding our cognitive and social systems) helps guide individuals and organizations toward more successful decisions.

Here, a theory is understood as a set of interrelated propositions (or assertions)[6]. Using techniques derived from content analysis[7,8] and textual analysis[9] and Discourse Analysis[10]. Essentially, it is possible to analyze theory as it appears "on paper" in terms of its structure[1]. In this emerging sub-field, studies have found that such measures may be used to estimate the potential usefulness of a conceptual system[11,12,13].

Conflict theory may have originated with Thucydides (at least implicitly)[14] and generally includes themes of social stratification, interests of groups and individuals, who wins, the relevance of controlled resources, and resulting social change. Since the 1970's conflict theory has been focused less on hypothetical musings and more on empirical analysis and network analysis. For example, Mann's four network model of cultural networks, economic networks, political networks, geopolitical networks[14].

Our poverty of effective conflict theory is reflected in the level of ongoing war and even in the failure of military policy[13] despite emerging opportunities to understand and improve theory and policy[15]. A study of all conflict theory is beyond the scope of the present paper. Therefore, we will focus on the first century of the field. I hope to collaborate with other scholars who are interested in future research and publications.

Turner[16] identifies what we might call the "century of origin" between the middle of the 19th century and the middle of the 20th century. In that time, sociology saw multiple approaches to conflict. Marx's work was focused on moralistic approaches to understanding class conflict. Weber and Simmel were critical of Marx and focused more on social stratification. The desire for more stable social systems was reflected in Dahrendorf's search for utopian theories, Parson's functionalist and positivist approaches to theorizing. Generally, this era was focused on issues of inequality, power, domain, and conflict.

Turner[16] sees little order to those theories and suggests that the path to improving conflict theory rests in defining what conflict is, how to measure the units of conflict (what level of abstraction), and clearing up confusion around the functions and causes of conflict (how are these to be explained or understood). Yet, such a path is not without its own confusions. For example, developing a single definition of conflict that will be supported by a simple majority of sociologists sounds like an impossible task on the face of it. In the present paper I will instead suggest a path toward improvement that is simpler and more objective and yet is also more flexible.

For the present study, I will focus on this century of origin in an effort to discern what trends may be seen in the theories of that time. There, Turner saw only an irreconcilable profusion of origins and foci for conflict theory. In contrast, PA (the methodology for the present study) works at a high level of abstraction to identify structural similarities within versions of the theory. In this way, we may identify better ways to understand and improve theories of conflict and so learn to improve theories of sociology for the betterment of humanity.

The present study investigates conflict theory by examining a set of theories developed between the mid 19th and the mid 20th centuries. Using PA, each theory is analyzed to determine its Complexity (number of concepts within the body of the theory) and the Systemicity (the extent to which the concepts within the theory are systemically interrelated). Please note that here the measure of Complexity is one of "simple complexity" such as the number of objects. Also, please note that some previous publications have used the term "robustness" in reference to systemic structure. To reduce the confusion that might arise from alternative understandings of the word, the present paper will use the term "Systemicity."

While the sample set is small, this study is expected to illustrate opportunities to improve conflict theory — which may then be used to more effectively improve the human condition. Because PA is an emerging methodology, some explanation is in order

Method and data

Many reputable scholars have identified structure as an important feature of theory[1,17,18]. The general idea is that a theory with more structure is more advanced. Hence, the more structured theory should prove more useful in research and in practical application. However, those scholars did not provide a way to measure the structure of a theory; thus, there has been no way to determine with any sort of objectivity or rigor if one theory is more advanced than another because any theorist could claim that any theory "has" structure.

Building on the insights from those scholars, as well as insights from systems thinking and complexity theory, I recently developed Propositional Analysis (PA) [19] as an approach for evaluating the structure of theories found in academic publications. This approach may be understood as a form of bibliometric analysis (e.g., [20]). PA has proved useful in evaluating conceptual systems, such as theories, in a variety of fields including ethics[21], policy [13], physics[12], complexity[22], social entrepreneurship[23], organizations[24], psychology[25,26], entrepreneurship[27], policy[28] and (in the present paper) sociology. Importantly, a growing body of evidence supports the relationship between structure and usefulness.

For example, a recent study of conceptual systems considered the way college students understood concepts presented in a course. Students who identified systemic relationships between the course concepts scored better on their papers than students whose understanding was less systemic. That study showed a 17% correlation between the systemic structure of students' understanding and their test scores[11].

In another study Wallis[12] investigated electrostatic attraction theory as it evolved from ancient times through the scientific revolution[12]. There, theories of ancient times exhibited a very low level of Systemicity. And, of course, they were not highly effective in application. Later, during the scientific revolution, theories were more systemic and were similarly more useful in application. By the end of the scientific revolution, Coulomb's law (the final theory of that study) was found to have a very high level of systemic interrelatedness between the concepts. Of course, that theory (understood as a law of physics) is highly effective in application. It is well known that its use supports engineers in the design and creation of cell phones, computers, and related technology.

In a study of policy, three comparative case studies found a link between the Systemicity of policy, the complexity of policy, and the effectiveness of the policy[13]. These studies included economic and military policy as well as international treaties for the creation of international organizations. There, it was shown how policies that were measurably more complex were more likely to succeed in practical application. Indeed, the emerging methodology of PA enables us to choose objectively between conflicting policy proposals[29] and compare proposed policies of POTUS candidates https://kumu.io/Center-for-Scientific-Analysis-of-Policy/all-potus-candidates-economic-policies

In short, these kinds of objective measures allow for new kinds of analysis. This form of analysis seems to hold across multiple disciplines. Further, the context in which the theory was created does not seem relevant to the PA method because the focus in on the propositions found within the theory. That is to say we are looking at the result of the theory creation rather than the process of theory creation. In general, theories with fewer causal relationships between concepts would be less likely to be useful or effective in practical application. Now we will delve into how those concepts and causal relationships may be quantified.

Building on Wallis[30], PA may be best applied in a six-step process:

1.
    Identify propositions within the theory.

2.
    Compare with one another to identify overlaps, and drop redundant concepts.

3.
    Link causal concepts with resultant concepts.

4.
    Draw a diagram of the relationships (boxes for concepts and arrows for causal relationships).

5.
    Identify "concatenated" concepts (simply, any box with two arrows pointing towards it).

6.
    Identify the total number of concepts in the theory (one per box). This gives the Complexity of the theory. Divide the number of concatenated concepts by the total number of concepts in the theory to provide the Systemicity – a number between zero (low) and one (high).

By creating a diagram of the causal relationships found in the propositions of a theory, it becomes easier to understand the structure of that theory.

From PA, there are two resulting measures of structure, Complexity (C) and Systemicity (S). The Complexity is the number of concepts within the theory — essentially the size or conceptual breadth of the theory. A theory with three concepts would have a complexity of $C = 3$. Systemicity is a measure of the systemic interrelatedness between those concepts and is found on a scale between zero and one. If $S = $ zero, there are no causal connections. For example, a bullet-point list of ideas would have a Systemicity of zero (indeed, it could hardly be called a theory at all). A theory with $S = $ one, means that all the concepts within the theory are causally resultant from two or more other concepts. In short, Systemicity is the extent to which a theory might be understood as a system unto itself where the included concepts are self-contextualized.

For a brief abstract example (we will have more concrete examples later), consider a theory containing three propositions: 1. More A causes more B; 2. More B causes more C; 3. More D causes more B. Here, there are four concepts (A, B, C, D). Because two concepts are causal to B, that makes B a concatenated concept. The Systemicity of the system is 0.25 (the result of one concatenated concept divided by four total concepts.

Broadly, PA represents only one of (at least) three factors upon which the validity of any theory should be based: availability of use, internal coherence, and external correspondence with empirical data[31]. For the purpose of the present study, we will assume that the propositions are based on some reasonable level of

research or generally accepted personal understanding or insight by the original authors. Certainly, the theories chosen have been published in the literature and have received global recognition. Therefore, it may be said that those theories have at least some validity and so seem to be acceptable data for the present study.

For analyzing theory, two of these qualifications are intertwined. There must be correspondence between the concepts and their "real-world" counterparts. And, there must be coherence between the concepts within the theory itself. Neither will suffice without the other. For example, there may be situations where a theory is highly structured, yet the propositions are based on fanciful notions. For example, one might claim the ability to achieve global peace by tickling invisible fairies with feathers plucked from pink elephants. While one may claim that such a theory exhibits some level of structure, one would still need to have access to a supply of fairies and feathered elephants for the theory to be useful. For the present paper, we will rely on the more responsible propositions of well-known scholars and eschew fanciful fairies.

Similarly, it is possible to have a cornucopia of "real world" data. However, if there is little structural interrelatedness between the data it does not rise to the level of theory. An example may be seen in any database or list of facts. In short, we are here in the information age, with more data than any time in history. However, all that data does not add up to a useful theory.

Another, somewhat related, point also deserves some mention. That is the question of how each concept within a theory is defined. Here, I adopt the clarifying approach of systems thinking — where those propositions may be understood as "interrelated," where they are, "reciprocally or mutually related"[32]. Thus, a theory may be understood as a kind of system and, "…any part of the system can only be fully understood in terms of its relationships with the other parts of the whole system"[33]:83. For example, values that effect behaviors can not be well understood as values unto themselves but only in relation to the behaviors they effect.

All these theories are from a single source[16]. A final note on the validity of the present theories as a data set is that they may be compared with one another more reliably because they are all understood through a single "filter." That filter is the scholar in whose highly cited publications the theories are found.

From these insights, it appears that we can use PA as a method to evaluate the structure of theories from a reputable source. We can do this to evaluate individual theories as to how effective they may be in practical application. We can also compare two or more theories to find which one is more likely to be effective. And, we can analyze a set of theories over time to find if theories of sociology are improving, or not.

Analysis

For this analysis, I chose to analyze conflict theory as an area with a long history and deep interest within sociology. I found a good sample set in Turner's[16] classic "*The Structure of Sociological Theory*." Turner is a respected scholar in the field of sociology and his presentation of theories is well structured. Thus, they are more amenable to PA. That is to say, he presents theories as sets of clear and concise propositions that are like well-made bricks, rather than rough-hewn stone. Bricks are easier to use in building and require less mortar to hold them together.

Using PA to analyze the conflict theories, we follow now the six steps noted above in this partial example using, as an example, Simmel's theory on conflict intensity[16]:

1.

Identify propositions within the theory.

Turner has provided a clear set of the propositions:

- ○
  The greater is the degree of emotional involvement of parties to a conflict, the more likely is the conflict to be violent.

- ○
  The greater is the respective solidarity among members of conflict parties, the greater is the degree of emotional involvement.

- ○
  The greater is the previous harmony between members of conflict parties, the greater is the degree of their emotional involvement.

- ○
  The more that conflict is perceived by members of conflict groups to transcend individual aims and interests, the more likely is the conflict to be violent.

- ○
  The more that conflict is a means to a clearly specified end, the less likely is the conflict to be violent.

2.
   Compare with one another to identify overlaps, and drop redundant concepts.

   There is a number of overlapping conceptual concepts between the above propositions. For example, most propositions take note of the conflict intensity. For each of those propositions, the redundant concepts may be dropped.

3.
   Link causal concepts with resultant concepts.

   Where those above conceptual concepts have overlapped, those propositions may be linked by the cause and effect relationships provided in the propositions. For example, integrating the first two propositions gives us:

   The greater is the respective solidarity among members of conflict parties, the greater is the degree of emotional involvement and so the more likely is the conflict to be violent.

4.
   Draw a diagram of those relationships.

   The text can be made clearer by first diagramming the propositional relationships then connecting those propositions where conceptual overlaps are found.Here, all the propositions have been diagrammed and linked according to their causal relationships — their conceptual overlaps. Additionally, the language has been simplified for presentation and comprehension. Please note that the intent here is to remain true to

the author' original meaning — an important requirement for this kind of research[34].

b435504e-eec6-9cb5-5d3e-414aa0c59f9c

Image not found
https://journal.emergentpublications.com/wp-content/uploads/2015/12/b435504e-eec6-9cb5-5d3e-414aa0c59f9c-300x303.png

Fig. 1: Simmel's theory of conflict intensity

5.
   Identify "concatenated" concepts (those concepts that are explained by, or resultant from, two or more other concepts).

   In the above Figure, a double lined box identifies the concatenated concepts. It should be clear that there are two concatenated concepts because only two concepts are resultant from two or more causal concepts.

6.
   Identify the total number of concepts in the theory (one per box). This gives the Complexity of the theory. Divide the number of concatenated concepts by the total number of concepts in the theory to provide the Systemicity – a number between zero and one.

   If should be evident that there are six concepts in this theory. Therefore, the Complexity of the theory is C = 6.

The Systemicity of the theory is S = 0.33 (the result of dividing two concatenated concepts from step 5 by six total concepts).

This process of analysis was conducted for 10 theories of conflict provided by Turner[16]. The results of those analyses are shown in Table 1.

Table 1

Propositional Analysis of conflict theories

Year	Complexity	Systemicity	Theorist	Notes
Circa 1844	22	0.23	Marx	
1890	8.7	0.34	Simmel	(Average of 3 theories)
Circa 1915	11	0.27	Weber	
1959	20	0.25	Dahrendorf	

Year	Complexity	Systemicity	Theorist	Notes
1950s & 1960s	10	0.25	Coser	(Average of 4 theories)

Presenting some of these results graphically, Fig. 1 shows the complexity of theories as they have changed over time.

aefb4881-b157-4bfa-fe9e-e45d24325c01

Image not found
https://journal.emergentpublications.com/wp-content/uploads/2015/12/aefb4881-b157-4bfa-fe9e-e45d24325c01-300x152.png

Fig. 2: Theories of conflict: Changes in complexity over time

Here, we see the changes in complexity of theories of conflict. While there is considerable variation, the trend line suggests that theories of conflict are becoming simpler. While there is no "right" answer for how complex a theory should be (so far as we know), there are (at least) two ways of looking at these results. First, is based on the idea of parsimony — where a theory "should" be simple. While such an approach may seem convenient, there are strong arguments against this view[35,36,37,38,39].

Further, there is a very practical reason to void the parsimony hypothesis. There is a lower limit to the simplicity of a theory. We might say that the smallest possible theory is one that contains a single concept. Having a theory with one idea is like having a house built from a single brick. I may not know how many bricks are needed to build a good house… but I know that the number must be more than one. More practically, it seems reasonable that a complex issue such as conflict should require a complex theory to understand.

b80437b3-0662-5ddf-b05b-1e4bf2d8da35

Image not found
https://journal.emergentpublications.com/wp-content/uploads/2015/12/b80437b3-0662-5ddf-b05b-1e4bf2d8da35-300x151.png

Fig. 3: Theories of conflict: Changes in systemicity over time

As discussed above, a theory with a Systemicity of zero would have no structure and so would not be useful in practical application. A theory with a Systemicity of one would be highly effective. Looking at the Systemicity of these theories of conflict, they are at a rather low level. However, this low level of Systemicity is consistent with many other theories of the social sciences[25]. Of greater importance, it may be that the Systemicity of this sub-field is in slow decline. Thus, according to this criterion, conflict theory does not seem to be improving; instead, it is becoming less effective. The above analysis also suggests that none of those theories are likely to be highly effective in practical application. And, indeed, the present level of conflict in the world seems to bear this out.

While the careers of individual scholars may be advancing because they publish, receive citations, and achieve tenure, conflict theory is not advancing. We might say, therefore, that the advances in conflict theory have been purposeful on the micro level (of the individual scholar), but non-purposeful on the macro level (of the science). The individual scholar has a clear sense of direction but the science does not.

As a result, we might be forced to wait for centuries for some scholar to develop a highly structured theory.

However, the inhuman state of global conflict calls out for us to develop theories that are more useful. And, we need to find those theories quickly and more purposefully to align our efforts on the micro and macro levels. One approach to accelerating the field of conflict theory more rapidly is to work towards a rigorous integration of our existing theories.

Integrating theories

Sociology has many theories of conflict in its storehouse of knowledge. Indeed, there are so many theories that it may not be feasible to analyze all of them to determine which one is best. Because the above theories are from authoritative scholars, it may be said that these are the "best." Without a new dimension of understanding, this may be as good as we can get.

An alternative approach for searching for a theoretical needle in the haystack of knowledge is to use an integrative version of PA to combine multiple theories in the creation of a single theory that will be more likely to be useful in practical application. Essentially, "Integrative Propositional Analysis" (IPA) is the same approach as PA except that the propositions are drawn from multiple theories instead of a single theory.

In this section, I describe how two theories of conflict may be rigorously integrated to develop a new theory and present an example of how to use IPA. This example is not meant to present some 'perfect' theory. Rather, the goal here is to demonstrate the process of theory improvement so that scholars within the field may more easily follow the path to their own benefit and the benefit of the field.

The first theory is Simmel's theory on conflict intensity as presented above in Figure 1. The second theory is Coser's theory of the function of conflict[16]. Coser's theory is diagramed following the above PA steps one through four and presented in Figure 4.

bf22aed8-3bc6-6d7a-d3e1-4cab9526078b

Image not found
https://journal.emergentpublications.com/wp-content/uploads/2015/12/bf22aed8-3bc6-6d7a-d3e1-4cab9526078b-300x334.png

Fig. 4: Coser's theory of the function of conflict

Using PA, it can be seen that there are two concatenated concepts and nine total concepts. Therefore, the Complexity is C = 9, and the Systemicity is S = 0.22 (the result of two concatenated concepts divided by nine total concepts).

Now, comparing the two diagrams (Figure 1 and Figure 4) it appears that each theory contains two concepts that are substantively similar to concepts in the other theory. Simmel's theory includes the idea of the likelihood of violence in a conflict while Coser describes this as violence or intensity of the conflict. Additionally, Coser's theory discusses the structural and ideological solidarity among members of a party while Simmel's theory notes the respective solidarity among members of a conflict party. In the absence of a description by Simmel's theory about what specific form of solidarity is involved, we might assume (for the purpose of the present demonstration) that Coser's structural and ideological solidarity is the same thing. We can overlay these two diagrams where these concepts overlap (as indicated by the ovals) as shown in Figure 5.

dbc60c30-883f-06da-374b-b64fb7e758f7

Image not found
https://journal.emergentpublications.com/wp-content/uploads/2015/12/dbc60c30-883f-06da-374b-b64fb7e758f7-300x195.png

Fig. 5: Integrated theory of conflict

Where the concepts overlap, those boxes may be understood as combined — so count as one within the ovals. So, in Figure 5, there are 13 total concepts. Four of those concepts are concatenated (two or more arrows pointing toward the concept/box). Therefore, the Complexity is C = 13 and the Systemicity is S = 0.31 (the result of four concatenated concepts divided by 13 total concepts).

The original Complexity for the Simmel and Coser theories were 6 and 9, respectively. The process of integration has created a single theory with Complexity of 13 — a clear improvement. The original Systemicity for the Simmel and Coser theories was 0.33 and 0.22 respectively. The integrated version has a Systemicity of 0.31. A slight decrease.

This particular example highlights a tradeoff between Complexity and Systemicity. The higher Complexity provides greater conceptual breadth for the theory but that increased complexity dilutes the Systemicity of the theory and thus inhibits the potential effectiveness of the theory.

As previously noted, we can expect a theory of greater Complexity to be somewhat more effective in practical application than a theory of less Complexity. However, to gain the greatest usefulness, or effectiveness, in practical application we seek to have a higher level of Systemicity.

The present example has integrated two theories and has resulted in a single theory, which is arguably superior in terms of its Complexity because this new theory has a greater conceptual range than either of the constituent theories. The theory in Figure 5 may also serve as an example for additional paths for improving the structure of a theory and so further improve the usefulness and effectiveness of the theory.

Directions for improving structure and systemicity

As noted above, the first path to improving the Systemicity of a theory is by adding additional concepts through a process of rigorously integrating multiple theories. The second approach is increase the Systemicity of the theory by identifying causal relationships between the extant conceptual concepts within the theory.

Looking at Figure 5, as an example, it may be suggested that "More internal differentiation of the conflict parties" might cause a reduction in "perceived to affect the welfare of all segments of the conflict group." If we add the appropriate causal arrow to Figure 5, we make the resulting concept into a concatenated one. That, in turn would raise the Systemicity of Figure 5 to S = 0.39 (the result of five concatenated concepts divided by 13 total concepts). This is an improvement over the original S = 0.31. Before such a claim could be made, however, it should be supported by existing theory and/or empirical research.

The third approach to improving the structure of a theory is to remove fringe concepts to focus the theory on the core concepts. This might be done, for example, because of a particular situation seems to call for a particular theory. Here, the scholar would need to accept that the theory would lose some conceptual breadth.

Lakatos[40] has argued that each theory has a solid "core" of central ideas, and is surrounded by a "belt" of ideas that protect the theory from challenges by disconfirming evidence. In one study of theory, however, that so-called core was rather elusive. Indeed, there were no common concepts across 20 versions of the "same" theory [19]. Therefore, it was suggested that a more effective way to understand the core of a theory would be to look at the density of casual relationships between the concepts of the theory. Those concepts of the theory with many

casual relationships would be understood as closer to the core, while those with fewer connections would be on the fringe. Like pruning a tree, those fringe concepts might be purposefully trimmed from the theory so that the core of the theory may be understood more clearly and applied in practice more effectively. Effectively, we will be increasing the Systemicity by reducing the complexity.

Again, using Figure 5 as an example, a scholar might choose to trim the following concepts:

- Clarity of the boundaries of the respective parties.

- Internal group conflict that will surface in the long run.

- Accumulation of hostilities.

- Suppression of dissent and deviance within each conflict party as well as conformity to norms and values.

- Previous harmony between members of conflict parties

Please note that those concepts were chosen because they would not reduce the number of concatenated concepts — those at the core. Removing those five concepts means that the theory now has eight concepts so has a Complexity of C = 8. Because we still have the same number of concatenated concepts (four) the Systemicity of the theory is S = 0.50 (the result of four concatenated concepts divided by eight total concepts). This is a clear improvement over the previous Systemicity of 0.31. Therefore, the new version of the theory can be expected to be more effective in understanding and managing conflict — at least within the concepts remaining within the theory.

It is worth noting that the lack of breadth may lead to unanticipated consequences. For example, the new theory does not take into account how "More internal group conflict will surface in the long run." Thus, the theory may be applied in practice with every appearance of success in the short run while the unanticipated consequence of internal conflict grows in the long run.

The choice of which method (or methods) to use is one for the scholar or practitioner who will use the theory for research and/or for practical application. In general, our research and practice will be more effective when we use theory with a higher Complexity and higher Systemicity. However, it is important to note that those theories which are more complex will be more difficult to use in their entirety for research or practical application[13].

That difficulty of research may be overcome by collaborating with other scholars within and between disciplines. Such collaborations and more complex forms of research would also benefit from additional funding and other forms of support. Indeed, complexity in application means that the more complex theory will require more resources for tracking changes (e.g. in levels of conflict) as they occur over time. And, of course, more resources are needed to enact those changes.

Conversation

The above analysis found that theories of conflict appear to be declining in complexity. Additionally, theories are not increasing in structural Systemicity; instead, they are slowly declining. The reason for this trend is not yet clear. It may be that sociology is following the often-repeated call for the use of empirical data and parsimonious theory. While following such a call may be beneficial and/or convenient in some situations, it is problematic in the present context because we cannot expect simple theories to be highly useful in understanding complex conflict. We should be aware that call for parsimony is a dangerous one. So far, it has only led the ship of sociology toward the rocks of irrelevancy.

We may hypothesize another potential reason for the decline of complexity. It is conceivable that our theories are becoming simpler because we have gained a deep and tacit understanding of the topic. Within the confines of sociological scholarship, this sounds like a rather reasonable idea. We can readily assume that sociological scholars, communicating amongst themselves through the medium of academic journals, have such an understanding. In such a situation, it may seem unreasonable to describe every complex detail of a theory in every article. After all, if we all know what we are talking about and we are all talking about the same thing, why re-explain it?

The answer is two-fold. First, my investigations into theory suggest that we believe ourselves to be talking about the same thing. However, when we drill down to the details, the differences often outweigh the similarities[41]. Second, the usefulness of conflict theory for the purposes of publication and achieving tenure within the academic world are vapid compared with the need to develop effective theories for resolving conflict around the world. It is my contention that sociology has a vast unrealized potential for improving the world. We will not realize that potential, however, if we continue our present paradigm of scholarship that is purposeful and effective on the micro level (advancing publication and tenure) but accidental and ineffective on the macro level (reducing global conflict). In a similar vein, we are continually striving to understand our understanding of how we explain, communicate, and understand the world[42]. An understanding that seems (at least in part) to be supported by systemic structure[43].

It is interesting that the Systemicity of our theories of conflict over time has remained fairly constant (Figure 3). This may be due to limitations of human cognition. It may be that we cannot easily comprehend theories that are highly interconnected. If so, however, we might expect an inverse relationship between Complexity and Systemicity. That is, a theory with Greater complexity would have lower Systemicity. That relationship is not evident in the data.

A more viable explanation is that sociology is satisfied with a certain level of Systemicity. When a scholar reaches such a level of Systemicity (which may reflect a certain depth of insight) the motivation shifts and the scholar stops trying to integrate existing concepts and begins searching for new and (potentially) more interesting concepts. Whatever the reason, this trend is one that must be reversed if we are to develop highly effective theories.

It is reasonable, to some extent, to generalize the findings of the present study to sociology as a whole because conflict theory is of such broad scope that it may be generally said to be representative of sociology in general[14]. That is to say, the limitations (and opportunity for benefit) of sociology is reflected in conflict theory[16].

This is important because it would seem that sociology is becoming increasingly simplified. This seems to fit the notion that sociology is becoming more fragmented[2]. We are becoming a field of simple fragments — each one irrelevant in its isolation. Instead, if we are to improve the relevance of sociology, we should be seeking to integrate our theories to become more Systemic so that sociology may fulfill the promise of the social sciences and improve the human condition.

Conclusion

In the present paper, I have presented an emerging methodology for analyzing the structure of sociological theories. This methodology provides empirical justification of the claim that theories with higher levels of Systemic structure are likely to be more effective for research and practice. Propositional Analysis (PA) provides a rigorous approach for measuring the structure of theories based on the causal structures within the theory. This method provides a measure of the Complexity (number of concepts) and Systemicity (internal coherence, or structure) of each theory. Using PA, this paper analyzed theories of conflict as they evolved over the past century. This study found that theories are becoming simpler over time. Additionally, the Systemicity of theory is nearly stable or slowly declining. Thus, we must reluctantly conclude that they are becoming less useful for research and less useful for the very important practical application of understanding and reducing conflict.

Previous studies of conflict have resulted in the development of theories. However, we still face unacceptably high levels of conflict including terrorism, revolution, war, and human suffering. One relatively common claim is that sociology is advancing because each new theory and study adds to the storehouse of knowledge. This approach, however, does not tell us which of those theories in the storehouse might be more effective than another. And, because our storehouses are stuffed full of theories, we have no way to sort through them to decide which one(s) to use. Thus, our very success as individual scholars gets in the way of our society's ability to use those theories. Or, from an alternative perspective, it seems that we are valuing the quantity of our theories over the quality of our theories.

Much work remains to improve conflict theory[12]. The results of this study supports the assertion that "sociological theorizing is in its intellectual infancy"[16]:33 although it appears to have tremendous potential for development.

Turner has suggested that the development of more effective theories requires improved definitions of the concepts within the theories. The present paper shows that a better approach is to quantify the structure of theories and integrate theories those theories using IPA. Further, Turner's goal of improved definitions will also be reached by this approach because the concepts within the theories will be effectively identified by the other concepts within the theory. That is to say the highly systemic theory is one where each concept is defined by the other concepts within the theory.

Here, the focus has been on theories from the century of origin. More study is needed to determine if the discovered trends continue through the 21st century. I look forward to collaborating with other scholars in those investigations. Future studies could replicate the present study with a larger sample of theories that includes more versions of conflict theory. Alternatively, future studies of this type could focus on theories from other sub-fields of sociology. Additionally, other scholars could test my assumptions by replicating the present study with the same theories drawn from Turner, or with the same theories drawn from other sources.

Additional studies might focus on specific schools of thought, specific journals, or similar demarcations. An important area of study would be to compare the structure of theory with the results ofimplementation to see if a more exact and rigorous correlation exists along the lines suggested in the present article.

Of course, IPA is not the only method for analyzing and advancing theories. One alternative is to focus on the context of the conflicts that inform those theories. For example, Oberschall43 suggests five areas of conflict theory that have recently emerged. These include Kaplan's "Ancient Hatreds," the "Symbolic Politics" of Huntington and Kaufman, along with Gagnon's "Manipulative Elites" and the "Economic Roots" of Collier and others.

While each of these may represent different approaches to understanding conflict, each theory must be made of propositions that identify relationships between actors. And, importantly, there is no way to show that these new theories are likely to be any more effective than previous theories. In short, it may be said that sociology has developed new "buckets" for organizing or categorizing theories but that does not show us which is the better theory within a given bucket or category45. Indeed, those directions may be understood as bringing fragmentation to the field — very much in contrast to the IPA approach of integrating multiple theoretical perspectives.

While the results of the present study show that conflict theories are not as impressive or useful as we would like, the structure of those theories are not far removed from theories found in other fields of the social sciences 23,25. Indeed, theories of the social sciences seem to be at about the same level of structure; and so the same level of usefulness or effectiveness. Whether we are talking about conflict theories in sociology or organizational change methodology in Industrial/Organizational psychology.

For example, studies on the effectiveness of organizational change models such as Total Quality management (TQM) show a success rate of about 25%46. Also, success rates of Business Process Reengineering (BPR) show a success rate of about 20%47. As shown in the present paper, the Systemicity of theories of conflict in the present study were around $S = 0.25$. Is this a coincidence? Or, is this a trend across the social sciences — that our "social technology" seems to "work" about one fourth of the time (or about one fourth as well as we think it should). Certainly, this is a peculiar coincidence that suggests the need for additional research.

In the present paper I argue that it is possible to accelerate the advancement of sociology by integrating multiple theories to improve their structure (Complexity and Systemicity). We do not yet know how complex our theories "must" be, for them to be highly useful for the purpose of significantly reducing conflict. What we do know is that they are presently not useful enough. They do not have sufficient "requisite variety"48. To remedy this situation and improve the relevance of sociology, we should develop theories that have higher levels of structure as measured by their Complexity and Systemicity. While this might cause some difficulties for individual scholars, the effort would be rewarded by improved theory, improved practical usefulness, and improved relevance of the field.

To choose the best theory involves three key dimensions31. First, the theory must be available to the practitioner. This may seem obvious, but it bears mention (if only to encourage our efforts to seek new theories so that we have more theories to work with). Second, the better theories will have better correspondence with the situation (the empirical perspective). For a negative example, a theory on international conflict is not likely to be very useful for studying child development. Third, the choice between theories should be based on the measurable structure of the theory as found using Propositional Analysis to determine the Complexity and Systemicity of the theory.

Finally, allow me to suggest an interesting exercise for students. Using the methods presented in this paper, students could evaluate theories in order to more effectively and objectively choose the best one(s) for a variety of uses. This could be done by using PA to determine the Complexity of the theory — which is a good measure of the conceptual breadth. This would also show the Systemicity of the theory — which is a good measure of the internal coherence of the theory — which is a good measure of explanatory depth. Together, the Complexity and Systemicity indicate the structure of the theory along two dimensions. Finally, students should evaluate the

correspondence of the theory. That is to say, to identify the extent to which the theory was developed using empirical data and/or to what extent has the application of the theory in practice proved the assumptions within the theory.

Those clear measures will enable the next generation of scholars to evaluate existing theories more effectively and advance the field more impressively by providing theories that are unarguably effective in practical application to fulfill the dream of the social sciences and dramatically improve the human condition.

References

- Dubin, R. (1978). Theory building (Revised ed.), ISBN 0-02-907620-X.
- Phillips, B. and Johnstone, L. (2008). The Invisible Crisis of Modern Sociology: Reconstructing Sociology's Paradigmatic Assumptions, ISBN 978-1-59451-372-5.
  Reference Link
- Appelbaum, R. P. (1970). Theories of Social Change, ISBN 8410-4019-2.
- Boudon, R. (1986). Theories of Social Change (J. C. Whitehouse, Trans.), ISBN 0-7456-0950-3.
- Wallis, S. E. (2015b). The science of conceptual systems: A progress report. Foundations of Science, ISSN in press- available on request.
  Reference Link
- Weick, K. E. (1989). Theory construction as disciplined imagination. Academy of Management Review, ISSN 0363-7425, 14(4): 516-531.
- Semler, S. (2001). An overview of content analysis. Practical Assessment, Research & Evaluation, ISSN 1531-7714, 7(17).
  Reference Link
- Sussman, S. (2010). A content analysis of evaluation & the health professions over 32 years. Evaluation and the Health Professions, ISSN 0163-2787, 33(7): 7-11.
- Knorr-Cetina, K. (1981). The Manufacture of Knowledge: An Essay on the Constructivist and Contextual nature of Science, ISBN 9780080257778.
- Cukier, W., Bauer, R. and Middleton, C. (2004). Applying Habermas' validity claims as a standard for critical discourse analysis. Information Systems Research, ISSN 1047-7047, 143: 233-258.
- Curseu, P., Schalk, R. and Schruijer, S. (2010). The use of cognitive mapping in eliciting and evaluating group cognitions. Journal of Applied Social Psychology, ISSN 0021-9029, 40(5): 1258-1291.
- Wallis, S. E. (2010). The structure of theory and the structure of scientific revolutions: What constitutes an advance in theory? In S. E. Wallis (Ed.), Cybernetics and systems theory in management: Views, tools, and advancements: 151-174. ISBN 978-1-61520-668-1.
- Wallis, S. E. (2011). Avoiding policy failure: A workable approach, ISBN 978-0-9842165-0-5.
- Collins, R. (1990). Conflict theory and the advance of macro-historical sociology. In G. Ritzer (Ed.), Frontiers of social theory: The new syntheses: 68-87. ISBN 0-231-07078-0.
- Wallis, S.E. (2010). Towards the development of more robust policy models. Integral Review, ISSN 1554-0790, 6(1): 153-160.
  Reference Link
- Turner, J. H. (1986). The structure of sociological theory (4 ed.), ISBN 0-256-03408-7.
- Kaplan, A. (1964). The conduct of inquiry: Methodology for behavioral science, ISBN 0765804484.
- Stinchcombe, A. L. (1987). Constructing social theories, ISBN 0-226-77484-8.
- Wallis, S. E. (2008). From reductive to robust: Seeking the core of complex adaptive systems theory. In A. Yang and Y. Shan (Eds.), Intelligent Complex Adaptive Systems: 1-25. ISBN 978-1-59904-717-1.
- Kostoff, R. N., del Rio, J. A., Humenik, J. A., Ramírez, A. M. and García, E. O. (2001). Citation mining:

Integrating text mining and bibliometrics for research user profiling. Journal of the American Society for Information Science and Technology, ISSN 52(13): 1148-1156.

- Wallis, S.E. (2010). Towards developing effective ethics for effective behavior. Social Responsibility Journal, ISSN 1747-1117, 6(4): 536-550.
- Wallis, S.E. (2009). The complexity of complexity theory: An innovative analysis. Emergence: Complexity and Organization, ISSN 1521-3250, 11(4): 26-38.
- Wallis, S.E. (2009). Seeking the robust core of social entrepreneurship theory. In J. A. Goldstein, J. K. Hazy and J. Silberstang (Eds.), Social Entrepreneurship & Complexity. ISBN 9780984216406.
- Wallis, S.E. (2009). Seeking the robust core of organisational learning theory. International Journal of Collaborative Enterprise, ISSN 1740-2085, 1(2): 180-193.
- Wallis, S.E. (2012). Theories of psychology: Evolving towards greater effectiveness or wandering, lost in the jungle, without a guide? Paper presented at the 30th International Congress of Psychology: Psychology Serving Humanity, Cape Town, South Africa.
- Wallis, S.E. (2015). Integrative Propositional Analysis: A New Quantitative Method for Evaluating Theories in Psychology Review of General Psychology, ISSN 19(3): 365-380.
- Wright, B. and Wallis, S.E. (2015). Using Integrative Propositional Analysis for evaluating entrepreneurship theories. SAGE Open, ISSN July-September: 1-9.
  Reference Link
- Shackelford, C. (2014). Propositional Analysis, Policy Creation, and Complex Environments in the United States' 2009 Afghanistan-Pakistan Policy. Unpublished Doctoral Dissertation, Walden, Minneapolis, MN.
- Wallis, S. E. (2013). How to choose between policy proposals: A simple tool based on systems thinking and complexity theory. E:CO - Emergence: Complexity & Organization, ISSN 1521-3250, 15(3): 94-120.
- Wallis, S.E. (2012). Existing and emerging methods for integrating theories within and between disciplines. Paper presented at the International Society for Systems Sciences (ISSS), San Jose, CA, USA.
- Wallis, S. E. (2008). Validation of theory: Exploring and reframing Popper's worlds. Integral Review, ISSN 1553-3069, 4(2): 71-91.
  Reference Link
- Webster's. (1989). Encyclopedic Unabridged Dictionary of the English Language, ISBN
- Harder, J., Robertson, P. J. and Woodward, H. (2004). The spirit of the new workplace: Breathing life into organizations. Organization Development Journal, ISSN 0889-6402, 22(2): 79-103.
- Ritzer, G. (2001). Explorations in social theory: From metatheorizing to rationalization, ISBN 0-7619-6773-7.
- Faust, D. (2005). Why Paul Meehl will revolutionize the philosophy of science and why it should matter to psychologists. Journal of Clinical Psychology, ISSN 0021-9762, 61(10): 1355-1366.
- Faust, D. and Meehl, P. (2002). Using meta-scientific studies to clarify or resolve questions in the philosophy and history of science. Philosophy of Science, ISSN 0007-0882, 69: S185-S196.
- Meehl, P. E. (1992). Cliometric metatheory: The actuarial approach to empirical, history-based philosophy of science. Psychological Reports, ISSN 0033-2941, 71(2): 339-467.
- Meehl, P. E. (2002). Cliometric metatheory: II. Criteria scientists use in theory appraisal and why it is rational to do so. Psychological Reports, ISSN 0033-2941, 91(2): 339-404.
- Meehl, P. E. (2004). Cliometric metatheory III: Peircean consensus, verisimilitude and asymptotic method. The British Journal for the Philosophy of Science, ISSN 0007-0882, 55(4): 615-643.
- Lakatos, I. (1970). "Falsification and the methodology of scientific research programmes," in I. Lakatos and A. Musgrave (eds.), Criticism and the Growth of Knowledge, ISBN 0521096235, pp. 91-195.
- Wallis, S.E. (2014). A systems approach to understanding theory: Finding the core, identifying opportunities for improvement, and integrating fragmented fields. Systems Research and Behavioral Science, ISSN 1099-1743, 31(1): 23-31.
- Lissack, M. and Graber, A. (eds.) (2014). Modes of Explanation: Affordances for Action and Prediction,

ISBN 9781137406453.

- Wallis, S.E. (2014). "Evaluating explanations through their conceptual structures," in M. Lissack and A. Graber (eds.), Modes of Explanation: Affordances for Action and Prediction. ISBN 9781137406453.
- Oberschall, A. (2010). Conflict Theory. In K. T. Leicht and J. C. Jenkins (Eds.), Handbook of Politics: State and Society in Global Perspective: 177-194. ISBN 978-0-387-68930-2.
- Wallis, S.E. (2012). Critical Integrative Metatheory: New Methods to Evaluate Psychological Theories & Models for Review, Psychology Serving Humanity, 30th International Congress of Psychology. Cape Town.
  Reference Link
- MacIntosh, R. and MacLean, D. (1999). Conditioned emergence: A dissipative structures approach to transformation. Strategic Management Journal, ISSN 0143-2095, 20(4): 297-316.
- Dekkers. (2008). Adapting organizations: The instance of Business process re-engineering. Systems Research and Behavioral Science, ISSN 1092-7026, 25(1): 45-66.
- Ashby, W.R. (1958). "Requisite variety and its implications for the control of complex systems," Cybernetica, ISSN 0011-4227, 1(2): 83-99.
  Reference Link