

A STUDY OF CAUSALITY IN MILITARY PLANNING

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Security and Conflict Studies

by

JACOB S. REEVES, MAJOR, USMC
M.S., Midwestern State University, Wichita Falls, TX, 2001

Fort Leavenworth, Kansas
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THESIS APPROVAL PAGE

Name of Candidate: Major Jacob S. Reeves

Thesis Title: A Study of Causality in Military Planning

Approved by:

_____, Thesis Committee Chair
LTC Celestino Perez, Jr., Ph.D.

_____, Member
Col Michael G. McCoy, M.S.

_____, Member
Joyce P. Dimarco, M.A.

Accepted this 8th day of June 2012 by:

_____, Director, Graduate Degree Programs
Robert F. Baumann, Ph.D.

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ABSTRACT

A STUDY OF CAUSALITY IN MILITARY PLANNING, by Major Jacob S. Reeves, 65 pages.

Military practitioners are often asked to make plans that could have enormous strategic effects without having a good understanding of their operational environment. It is exactly this relationship between the plan, the environment, and the end state that is not well understood. Increased familiarity with scholarly theories of causation will improve military planners' and commanders' ability to understand and intervene in the world. Some literature suggests there is a gap between academic theory and military practice. Bridging this gap will create a richer learning environment for both parties. Craig Parsons describes four key arenas of causation on which military professionals can categorize their efforts. William Connolly gives great arguments against relying on direct cause-and-effect relationships while not undermining the importance of actions in search of a specific goal. Using Joint Publication (JP) 5-0 as a familiar base to combine these two theorists, military professionals can gain an understanding of the insights borne from political science. Likewise, political science theorists can gain some appreciation for, and interest in researching, the difficulties of applying a pristine theory to the messy operational environment in which military professionals are asked to perform.

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ACRONYMS

FM	Field Manual
IED	Improvised Explosive Devise
JFC	Joint Force Commander
JP	Joint Publication
LOE	Line(s) of Effort
PMESII	Political, Military, Economic, Social, Infrastructure, Information
RKG-3	<i>Ruchnaya Kumulyativnaya Granata</i> (Handheld Shaped Charge Grenade)
SCO	Squadron Commanding Officer

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CHAPTER 1

INTRODUCTION

Military practitioners are often asked to make decisions that could have enormous strategic effects. This not only occurs in the heat of the moment on the battlefield, but also during the early stages of planning before a single member of that organization has touched foot upon the soil. It is during this planning that commanders and their staff have the time and obligation to develop a sound and well-thought-out approach to reach their desired end state.

A greater depth of knowledge in the theories of causation could assist commanders and staff during these times of planning and decision-making. I will show how a combined model formed from the theories of William Connolly and Craig Parsons can be used by military practitioners to better understand relationships between cause and effect in areas of conflict.

Joint Publication (JP) 5-0, *Joint Operation Planning* walks service members through the processes of ensuring objectives are nested with higher headquarters, units have the correct missions, and they know how and what to measure to ensure accomplishment of the desired end state. At first, it appears JP 5-0 may contain all the answers. It is not until one begins to dig into the reasoning and starts asking “how?” that shortcomings in the doctrinal understanding of causality start to become evident.

For example, JP 5-0 states, “Understanding the operational environment helps the [Joint Force Commander] to better identify the problem; anticipate potential outcomes; and understand the results of various friendly, adversary, and neutral actions and how

these actions affect achieving the military end state”¹ But what helps the Joint Force Commander (JFC) better understand the operational environment? What if the JFC is asked to perform in an environment in which military units have little prior knowledge? Raw data, from which a commander can attempt an understanding, is available from a multitude of sources: the Department of State, the Central Intelligence Agency, the country’s website, and even the Department of Treasury.

However, an often-overlooked source, one that could provide a completely different perspective, is the world of academics. Members of academia often specialize in particular regions of the world developing a deep understanding of not only the overall atmosphere of the region, but also of the specific nuances that may be influential. Another manner in which academic efforts can aid commanders is more conceptual. A better understanding of social science theories can increase the military professional’s appreciation of the environment in which he is expected to operate. Of particular interest should be work on causal relationships and mechanisms.

Military professionals, by nature of the tasks they are asked to perform, concentrate on cause-and-effect relationships. The broad question being asked is: “What do I need to do to achieve my desired end state?” Put another way, what cause will create the desired effect? These causal relationships can be quite complex, but are often thought of, and planned for, as more direct in nature. Plans, orders, and mission statements are written in conventionally causal terms. This may be appropriate for conventional force on

¹Joint Chiefs of Staff, Joint Publication (JP) 5-0, *Joint Operations Planning* (Washington, DC: United States Department of Defense, 2011), III-8.

force employment; however, stability and humanitarian assistance missions are simply too complex for this type of direct relationship.

Political scientists and theorists who study causal mechanisms could provide commanders a useful framework from which to begin deciphering the complexity of their operational environment. Two such theorists are Craig Parsons and William Connolly. Gaining an understanding of Parsons's categories of causation as well as Connolly's emergent causality will allow for a greater understanding of the military's influence and create more realistic expectations.

Craig Parsons received notoriety for his ambitious work in 2007 proposing a universal language of direct causal logics. William Connolly is a well-known political theorist who explores a world of emergent causality in relation to complexity theory. There is however, no prominent literature reconciling their respective theories of causation as related to military doctrine and operations. By combining JP 5-0 with these two theorists, I will demonstrate causal logics embedded throughout military joint planning, thereby creating a richer way to read doctrine.

CHAPTER 2

LITERATURE REVIEW

There has been a long-standing belief of a divide between academics and military professionals. Michael Mosser presents a compelling case illustrating this divide stating academics focus on puzzles and military practitioners focus on problems.² Shapiro echoes this divide by stating, “In discipline after discipline, the flight from reality has been so complete that the academics have all but lost sight of what they claim is their object of study.”³

Others demonstrate there has recently been a movement in the human sciences for research that focuses more on real-world application and less on purely theoretical ideas⁴ or simply researching to further justify a position previously set forth.⁵ To illustrate the narrowing of this gap, within the first two days of the most recent Midwest Political Science Conference, there were 57 papers or posters presented with military related subjects. However, during the entire four days of the conference, there was only one presentation which examined causality in relation to security.

²Michael W. Mosser, “Puzzles Versus Problems: The Alleged Disconnect between Academics and Military Practitioners,” *Perspectives on Politics* 8, no. 4 (December 2010): 1078.

³Ian Shapiro, *The Flight from Reality in the Human Sciences* (Princeton, NJ: Princeton University Press, 2005), 2.

⁴Jeffrey C. Isaac, “Beyond the Three Faces of Power: A Realist Critique,” *Polity* 20, no. 1 (Autumn 1987): 4-31; Shapiro.

⁵Shapiro, 3.

One of the disciplines which Shapiro states which lost sight of its intended course of study, is the social sciences geared toward causal explanations.⁶ Military literature, on the other hand, is laden with causal claims. This is true whether the focus is previous events (explaining what intervention caused the events), or predicting future events (what events will be caused by our intervention). To illustrate the former, there is currently a large debate on what “caused” the violence in Iraq to decrease as evidenced by the works of Ollivant, Nagl, and Gentile.⁷ With regard to the latter, military literature like that from Perez may acknowledge there is difficulty with prediction but does not specifically address the relationship between causality and doctrine.⁸ Throughout military doctrine, inferences of predictive causes and effects abound.

There are both explicit and implicit references to causation throughout JP 5-0. A large portion of these references allude to a direct cause and effect relationship.⁹ However, an appreciation for the complexity of the operational environment is also present.¹⁰ Likewise, the Joint Intelligent Preparation of the Operational Environment, an important part of Joint Operations Planning Process, specifically addresses the

⁶Shapiro, 2.

⁷Douglas A Ollivant, “Countering the New Orthodoxy: Reinterpreting Counterinsurgency in Iraq,” New America Foundation, www.couterterrorism.newamerica.net (accessed 17 April 1012); John A. Nagl, “Learning and Adapting to Win,” *Joint Forces Quarterly* 58 (3rd Quarter 2010): 123-124; Gian P. Gentile, “A (Slightly) Better War: A Narrative and Its Defects,” *World Affairs* 171 (Summer 2008): 57-64.

⁸Celestino Perez, “A Practical Guide to Design: A Way to Think About It, and a Way to Do It,” *Military Review* 91 (March-April 2011): 41-51.

⁹Joint Chiefs of Staff, JP 5-0, III-8, 15, 16, 27, 28.

¹⁰*Ibid.*, III-10, 11, 12, 21.

complexity and relationships that could be influential throughout the operational environment.¹¹ Unfortunately, JP 5-0 also spends the same amount of time describing the Lines of Effort (LOE) whose very title, much less the graphical representation (see figure 1), calls to mind a single possible path with no deviations.

Even in a school environment, such as the formal Professional Military Education system, the focus is on the actual steps performed in the decision making and orders writing process. It is in this environment, when military practitioners have not only the time, but also the guidance to dig deep into doctrine, that we must look beyond what is simply printed on the pages. There are opportunities in the formal education process to truly expand one's understanding of (as opposed to the ability to regurgitate) doctrine. However, these opportunities are limited and are not taught to the majority of the students.

Mosser acknowledges the efforts made by both the military and academia to shorten the distance between the fields, specifically citing the Master of Military Arts and Sciences for the military and fellowship or research opportunities with the military for academic scholars, stating the gap may be "more one of degree than scope."¹² In response to Mosser's article, Yingling agrees this gap may not be as wide as once thought, citing whether trying to solve a puzzle or a problem, members of both institutions use similar critical thinking processes.¹³

¹¹Joint Chiefs of Staff, JP 5-0, III-9, 10.

¹²Mosser, 1078.

¹³Paul Yingling, "Critical Thinking and Its Discontents," *Perspectives on Politics* 8, no. 4 (December 2010): 1117.

Within the Master of Military Arts and Sciences curriculum is the scholars program “Local Dynamics of War.” The aim of this scholars program is to lessen the very gap of which Mosser and Shapiro speak. A military professional bases his decisions on his understanding of the operational environment, the world, and the interactions that take place. To ensure his understanding is more complete, it is necessary for military practitioners to learn about the different perspectives regarding how the world operates.

Mosser also draws parallels between academia and the military specifically naming the U.S. Army’s military decision-making process.¹⁴ This process is specific to the U.S. Army and not employed by all the branches as the title might suggest. Instead, for operations involving the other branches of the U.S. military, other agencies, and multinational forces, an equivalent tool is used: the Joint Operations Planning Process. This process, as described in JP 5-0, and the previously referenced “divide” serve as the motivation for writing this paper.

With the references to causality in JP 5-0, military practitioners would do well to reach out to the academic community in order to gain a deeper understanding of the applicable theories. Causation is a complex subject. This is partially due to the multitude of factors that influence events in life: historical, political, economic, cultural, religious, and ethical, to name a few. With all these factors at play, the unfolding of events can be multi-causal, circular, and emergent. Said another way, structural, institutional, ideational, and psychological themes converge to influence an outcome. Sometimes these

¹⁴Mosser, 1078.

themes amplify each other, undermine each other, or combine to create a new energy that was not previously influential - this is referred to as emergent causality.¹⁵

In political science, the study of causation has two distinct approaches: direct and emergent. While there are many theorists who lean toward direct causation, Craig Parsons provides an exhaustive description of four different categories of causation. These logics (structural, institutional, ideational, and psychological) give a common language from which a discussion on causation can begin.¹⁶ However useful this book may be for general audiences, he specifically states he wrote the book for two audiences: graduate students and established scholars.¹⁷ In relation to Parsons's ideational logic, Smith states that how a people define or identify themselves carries great importance in how interactions with these people should be approached.¹⁸ The ramifications of this concept cannot be overstated as the current operating environment places military professionals in direct contact with people around the world.

William Connolly is a heavyweight advocate of emergent causality taking a giant leap away from direct causation with his book *A World of Becoming*. His work brings to bear ideas from the natural sciences like pre-adaptations, open systems, equilibrium/disequilibrium, and self-organization, which will be explained in chapter 4.

¹⁵William E. Connolly, *A World of Becoming* (London: Duke University Press, 2011), 135.

¹⁶Craig Parsons, *How to Map Arguments in Political Science* (New York, NY: Oxford University Press, 2007), 3.

¹⁷*Ibid.*, 4.

¹⁸Rogers M Smith, *Stories of Peoplehood: The Politics and Morals of Political Membership* (New York, NY: Cambridge University Press, 2003).

Although many of these concepts originated in biology, neuroscience, theology, psychology, etc., Connolly is able to apply them because political action is accomplished by humans (or human made structures). If political actors are subject to the natural sciences, it follows logic that the consequences of their actions are also subject to the natural sciences. The idea of multidisciplinary study as practiced by Connolly is restated with a call for “analytic eclecticism” by other researchers.¹⁹ The idea behind analytic eclecticism is the ability to use any informative theory, regardless of the original research tradition, in order to more fully describe “the interactions among different types of causal mechanisms normally analyzed in isolation.”²⁰

If different academic disciplines can join forces to provide more complete theories, military practitioners should be able to elicit the aid of academics to assist in a richer understanding of their jobs. Whether the divide between academia and the military is large or small, I hope to begin bridging that gap by reconciling JP 5-0 with the causal theories of Parsons and Connolly. In the process, I will draw out some of the implicit references to causation hidden within JP 5-0.

¹⁹Rudra Sil and Peter J. Katzenstein, “Analytic Eclecticism in the Study of World Politics: Reconfiguring Problem and Mechanisms Across Research Traditions,” *Perspectives on Politics* 8, no. 2 (June 2010): 411-31.

²⁰*Ibid.*, 412.

Sample Lines of Effort

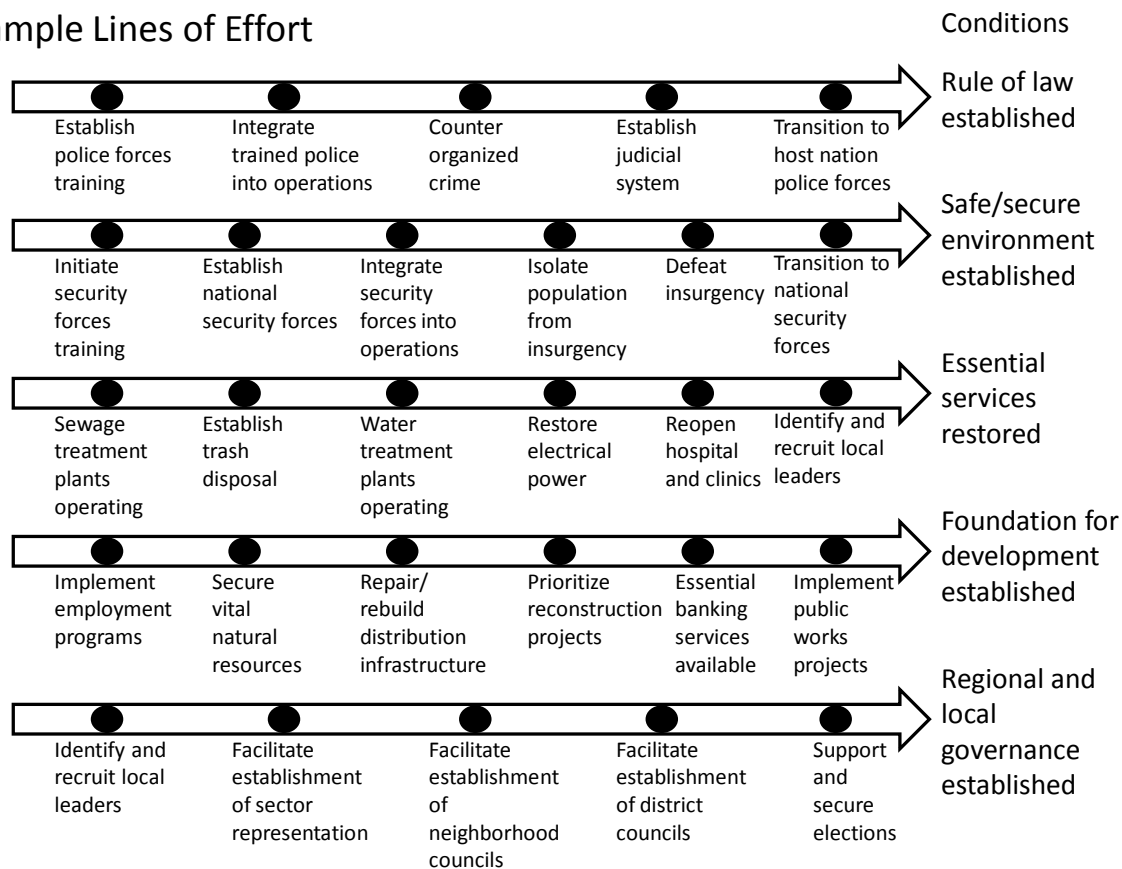


Figure 1. Sample Lines of Effort

Source: Joint Chiefs of Staff, Joint Publication 5-0, *Joint Operations Planning* (Washington, DC: United States Department of Defense, 11 August 2011), III-29.

CHAPTER 3

METHODOLOGY

Chapter 3 of JP 5-0 serves as the framework and substance for this analysis. Concentrating on the descriptions of operational art and operational design will allow for the application of Connolly's and Parsons's causation theories. This analysis will not only identify problems in the doctrine's application of causality, but also offer a new, richer way to think about causality in military planning and operations.

Uncovering an ontology has become an increasingly employed tactic in political theory.²¹ In this context, an ontology is simply a way in which the world is viewed, "the most basic conceptualizations of self, other, and world."²² In the following chapter, I will demonstrate how JP 5-0 has an implicit dialogue in addition to the explicit language used in dealing with causality. By designating a worldview to doctrine, we must acknowledge that whatever we decide an object's ontology to be, it is contestable. However, that contestability is necessary in order to have meaningful conversations and debates.²³

The shortfall of this analysis is that it is the author's interpretation of doctrine. It is neither absolute nor exhaustive. However, the strength is that it uses existing literature. Anyone can find theoretical work on causality or causation. Likewise, there are many more doctrinal publications that could be investigated using a similar approach.

²¹Stephen K. White, *Sustaining Affirmation* (Princeton, NJ: Princeton University Press, 2000), 3.

²²*Ibid.*, 6.

²³*Ibid.*, 8.

I argue that JP 5-0 includes a worldview that cautions the reader about the complexity of the operational environment, but ultimately treats interactions more simplistically and direct in nature. In all but a few places, the appreciation for complexity is buried within a more direct/simplistic view. The following analysis allows the reader to appreciate the complex nuances already embedded in doctrine.

I will begin to unearth the ontology of JP 5-0 with an explanation of Craig Parsons's four causal logics and William Connolly's emergent causality. Having introduced these key concepts, I will show how a more advanced appreciation of causality leads to a new way to read (mostly) Chapter 3 of JP 5-0. Next, the author will illustrate where the concepts of Parsons and Connolly bring to the fore the military professional's need for and practice of experimental intervention.

Lastly, I will apply the concepts of Connolly and Parsons to a real-world event as reported by John B. Richardson IV in the Letort Papers series of the Strategic Studies Institute. In performing this retrospective analysis, I hope to illuminate how the military practitioner can use these concepts to not only gain a deeper understanding of past events, but also gain an appreciation for when these concepts can be beneficial in the future.

CHAPTER 4

FOUR LOGICS OF CAUSATION

Craig Parsons promotes four “logics of causation” which he claims are exhaustive in their ability to capture the reasoning behind human actions.²⁴ By employing these four logics, he not only limits the possibilities of explanation which focuses discussions, but also gives scholars and practitioners a common language for those discussions. Below, I discuss the four logics, their requirements for classification, and explanatory examples.

Structural mechanisms explain what people do as a function of their position in relation to given external structures. These structures act as an obstacle course offering both constraints and resources.²⁵ According to Parsons, “Such logic explains variation in action by showing that people are positioned differently in the ‘material’ landscape (or, over time, by pointing to exogenous changes in the ‘material’ landscape which orient people toward new actions).”²⁶ For Parsons, the ‘material’ landscape is not only those concrete objects around us, but could also include things like geography, a distribution of wealth, or a distribution of physical power.²⁷ To include geography in the definition elicits no debate. This type of claim can be used to explain why a man in a land-locked area does not decide to become a fisherman. However, the distribution of either wealth or physical power could be argued as institutional (defined later). The discriminating factor

²⁴Parsons, 3.

²⁵Ibid., 12.

²⁶Ibid., 51.

²⁷Ibid., 12.

which maintains either of these in the structural definition is that the individuals whose actions are under examination can do little to nothing to change these aspects of the environment. Therefore, they are considered a “concrete, exogenously given environment.”²⁸

Institutional mechanisms explain what people do as a function of their position within man-made organizations and rules.²⁹ Parsons states, “A distinctively institutional claim . . . argues that the setting-up of certain intersubjectively present institutions channels people unintentionally in certain directions at some later point. Due to their inheritance of a certain institutional obstacle course, actors confront unambiguous constraints that orient them to certain behavior.”³⁰ While both structural and institutional claims are explained in terms of position, institutional claims are concerned with position within a man-made obstacle course, not an exogenously given obstacle course.

The second difference is in the inclusion of the word ‘unintentionally’ in the definition. The manner in which the institution was set up with its rules and incentives, can cause unforeseen consequences. These consequences are the targets of the institutional explanation.³¹

The third distinction between institutional and structural is a historical perspective. Parsons explains: “Institutions are consequences of earlier actions . . . [Scholars] must show that at some point in the past, extra-institutional conditions were

²⁸Parsons, 52.

²⁹Ibid., 12.

³⁰Ibid., 67.

³¹Ibid., 12.

insufficient in causing people to create or maintain this institutional pattern of action rather than some range of alternatives.”³² In other words, to claim a set of circumstances as institutional, one must rule out the possibility that those circumstances were created because of the geography (structural) or religious beliefs (ideational, defined next).

Ideational mechanisms explain what people do as a function of their beliefs whether they originate from cognitive, emotional, or spiritual biases. Ideational causes come from how a group of people define themselves, what they stand for, or from their shared cultural, religious, organizational beliefs.³³ Rogers Smith examines this idea in detail by calling “people-making” a “basic dimension of all political activity”.³⁴ For ideational, as it was for institutional, a historical perspective is important. An ideational claim must show the presence of this belief prior to the action and across different situations. It must also show that the people to whom the ideational claim is applied act similarly to each other and differently from those not included in “who they are.” Differences in the conduct of Afghan tribes within the same province might be reducible to ideational logics given similar geography (structural) and farming practices (institutional).

Psychological mechanisms explain what people do as a function of hard-wired thinking. By using the term “hard-wired,” Parsons means to say that this type of thinking is beyond the individual’s control, that it is inherent, and that it is generally encountered

³²Parsons, 91.

³³Ibid., 12.

³⁴Smith, 19.

across humankind. These mechanisms almost always lead to irrational actions.³⁵ While psychological logics may appear to be the most straightforward, they may also be the most difficult to prove. This is because to prove them requires the explicit exclusion of the other three mechanisms. That is to say that they cannot be reduced to a thought process that could be swayed (ideational), a decision anyone would make based off a cost/benefit analysis (structural), or a decision that is made simply to remain within the confines of the law (institutional).

Psychological claims either explain some of the preferences of rational actors or that people are hard-wired toward irrationality; the former being more difficult to argue as described above, the latter making up the majority of the psychological claims.³⁶ It is much easier to label a mechanism as psychological when the action is unreasonable. Because the decision/action simply does not make sense, the other three causal mechanisms are by default (almost) rejected, thus meeting the criteria above.

Psychological mechanisms have received much attention through literature. In Dan Ariely's book, *Predictably Irrational*, he chronicles everyday examples of "invisible" forces that affect the decision-making process.³⁷ Other articles have been written detailing the biases and hidden traps in decision making.³⁸

³⁵Parsons, 12.

³⁶Ibid., 134.

³⁷Dan Ariely, *Predictably Irrational* (New York, NY: Harper Collins, 2008).

³⁸Blair S. Williams, "Heuristics and Biases in Military Decision Making," *Military Review* 90 (September-October 2010): 40-52; John S. Hammond, Ralph L. Keeney, and Howard Raiffa, "The Hidden Traps in Decision Making," *Harvard Business Review* 84, no. 1 (January 2006): 118-126.

Parsons further describes these logics by means of position or interpretation distinctions and general or particular distinctions.³⁹ A logic of position explains a person's action in relation to their position within the "obstacle course" created by either structural or institutional limitations. A logic of interpretation deals with a person's perception of what is possible or desirable. General distinctions apply globally with little to no ability to change the circumstances in which someone finds himself. Particular distinctions are man-made in that they are consequences of decisions made because of some other contingency. By categorizing the logics in this manner, he allows them to be represented in figure 2.

	General	Particular
Position	Structural	Institutional
Interpretation	Psychological	Ideational

Figure 2. Parson's Logics

Source: Craig Parsons, *How to Map Arguments in Political Science* (New York, NY: Oxford University Press, 2007), 15.

³⁹Parsons, 13.

While these four logics relate to events as direct causal mechanism, Parsons moves from the realm of theory into application by acknowledging that neither scholarship nor real world events fall neatly into a single category. He does not propose that there can be no combination of influences or that only one logic can be at play in a given scenario. In figure 3, the shape in the middle demonstrates there may be contributions from all four logics but the overwhelming mechanism at play in this example is structural. Again, these logics are simply a starting point giving a common language and guidelines for their selection. When analyzing a situation, “those who want to combine logics into complex arguments must break down their claims into comprehensible segments before building them back together.”⁴⁰ This forces causal relationships to be scrutinized weakening the claim of correlation versus causation. Parsons furthers his appreciation for complexity by recognizing there may be insufficient evidence to completely accept one logic while completely rejecting another. This, however, does not dilute the importance of scholarly discussion or argument aimed at reducing a situation to its most basic logics.

Parsons begins with four distinct logics of causation and finishes with an appreciation for complexity. Conversely, William Connolly begins with elements of chaos theory and finishes with an acknowledgement that some specific types of events may be reducible to direct causal mechanisms. However, there is sometimes a gap in the understanding of what transpired between interventions and results. Emergent causality may account for the majority of this gap.

⁴⁰Parsons, 15.

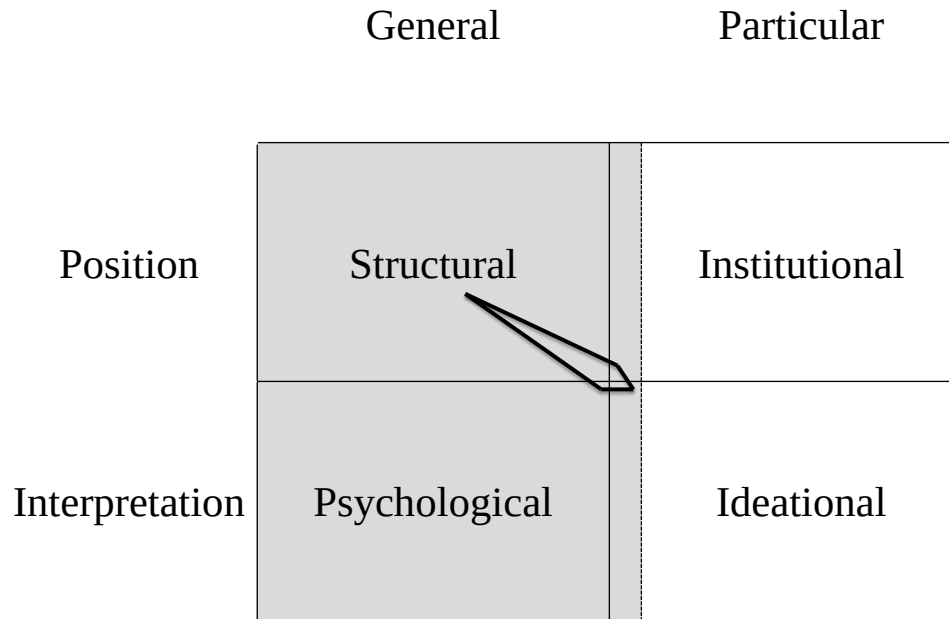


Figure 3. Depiction of Real World Event

Source: Adapted by author. Craig Parsons, *How to Map Arguments in Political Science* (New York, NY: Oxford University Press, 2007), 15.

Emergent Causality

William Connolly describes complexity theory using three interconnected themes: open systems, self-organization, and the inability to predict.⁴¹ The base concept of open systems sets the foundation for self-organization. These two themes, working with other variables, combine to create the inability to predict.

The idea of open systems originated in the natural sciences but can now be found throughout various fields from business to ecology to psychology. The central idea behind the theory of open systems is simply that a system (a cell, a human, a business, an

⁴¹Connolly, 18-9.

economy) takes inputs, transforms or adapts to them, and in turn influences the environment in which it is operating. The importance of this perspective is that it opens the door to possibilities; circumstances and the environment are no longer fully contained as in a closed system. This concept immediately introduces complexity in every environment from the monogamous relationship between two people to an attempt to create a new economic and political framework for a country. We inhabit and interact in a world of open systems, or “force-fields.” Connolly explains that an “[open system], roughly speaking, is any energized pattern in slow or rapid motion periodically displaying a capacity to morph.”⁴²

An important attribute of open systems is time. Connolly describes two categories of time: “chrono”⁴³ and durational. According to his description, chrono-time is “the difference measured by a clock between, say, the length of a human life and that of a hurricane.”⁴⁴ The idea of chrono-time is nothing new. It is the same concept with which we have always lived. It is defined from micro-seconds to years to eons. However, the interaction of open system with different tiers of chrono-time is a rather unique concept.

First consider the different tiers of chrono-time. Although not exhaustive, different tiers could be “geological time, evolutionary time, neuronal time, civilizational time, the time of a specific state regime, the time of a human life, the time of a type of economic organization, and so on almost endlessly.”⁴⁵ Connolly explains time as an

⁴²Connolly, 5.

⁴³Connolly uses “chrono” as a technical term.

⁴⁴Connolly, 71.

⁴⁵Ibid., 149.

attribute of an open system by stating, “A temporal force-field previously setting the background . . . for another field may erupt or gradually become altered, introducing new pressures into a previously stabilized zone.”⁴⁶

For example, consider the timeline involved in the activity leading to the eruption of a volcano in Iceland spreading ash that stopped airline traffic. Now consider the personal schedule of General Stanley McChrystal. There is also a third timeline which dictates the flight schedule into and out of Paris. As these different force-fields, each on its own timeline, merge, they interact to form a situation which allows a Rolling Stone reporter to spend more time with General McChrystal and his staff.⁴⁷ Had any one of these timelines been different, the article leading to General McChrystal’s relief might never have been written. The interaction leads us to the subject of durational time.

In the example above, each of the open systems (volcano, flight schedules, and General McChrystal’s schedule) exists in its own chrono-time. When the three systems meet, they may immediately create something new. This tumultuous time is durational time. Durational time is “those periods of phase transition when reverberations between two force-fields set on different tiers of clock-time change something profoundly.”⁴⁸

While either chrono or durational time can be used to investigate an open system, there are differences in their efficacy. Chrono-time may be more useful in simply providing a historical perspective. Once the interaction of open systems on different chrono-times creates disequilibrium, durational time can be explored. The importance of

⁴⁶Ibid.

⁴⁷Perez, 50.

⁴⁸Connolly, 71.

identifying this durational time is that there is “value [in] dwelling periodically in fecund moments of duration to help usher a new idea, maxim, concept, faith, or intervention into being.”⁴⁹

An example of dwelling in durational time is most easily seen in the movies. Imagine the point in the movie that the hero finds himself at a pivotal decision point. Time slows down, the hero remembers vital information (we see this as flashbacks), and the hero gains an understanding of the events leading up to this point. Having dwelled in durational time, the hero is able to make the decision necessary to save the world. Unfortunately, military practitioners cannot live in durational time, contemplating all the events that led them to their current situation. They must operate in chrono-time. However, recognizing durational time may pay great dividends to the practitioner willing to explore it.

Two or more of these open systems interacting may form a “resonance machine.” When one resonance machine comes into contact with another, the frequencies interact experiencing varying periods of equilibrium and disequilibrium. The “frequencies” of these resonance machines may cancel each other (equilibrium), amplify each other (disequilibrium), or they may vibrate at such a frequency as to create something novel and unpredictable. Self-organization is the process by which this something novel gains momentum and begins to resonate to its own frequency. There are two situations in which self-organization can be realized. The first occurs when one of the two systems interacting undergoes a change due to some pre-adaptation that was unknown in the

⁴⁹Connolly, 71.

environment prior to the interaction. The second occurs when the interaction between the two systems spurs the creation of something entirely new. Connolly says:

Pre-adaptations unstateable in advance, intersections between partially open systems of multiple kinds, and novel capacities for self-organization within a system triggered by infusions from elsewhere periodically operate in and upon each other, generating turns in time out of which a new equilibrium emerges, transcending our ability to articulate it in advance.⁵⁰

It is in this relationship between open systems that emergent causality is rooted. The ability of a system to create something that has the capacity for self-organization from an unknown pre-adaptation calls into question the notion of prediction.

The ability to predict the outcome of a specific influence may very well be feasible when dealing with two simple open systems that have achieved equilibrium. Connolly himself says: “The idea of emergent causality does not apply well to . . . relative stability. Efficient causality, or more richly, multicausal intersections work rather well under those circumstances. Emergent causality is most pertinent when a previously stabilized force-field enters a period of heightened instability.”⁵¹ The environment in which military practitioners find themselves operating is typically anything but stable. It is typically in, or near, turmoil with multiple systems at play. It is this quantity of open systems, each having pre-adaptation embedded, each with its own frequency, that leads to the inability to predict with any certainty.

With this many variables, this many unknowns, conventional causation becomes problematic. Connolly states: “Emergent causality consists of resonances within and between [open systems] in a way that is causal but beyond the power to isolate and

⁵⁰Connolly, 20.

⁵¹Ibid., 171.

separate all elements in determinate ways. An element of mystery or uncertainty is attached to emergent causality.”⁵² However, it is still causal in that one system interacts with another. Through this interaction, one or both systems morph to a certain degree. Had it not been for this interaction, neither system would likely have gone through the metamorphosis that occurred.

Causality in Doctrine

In the military, there are manuals for almost everything; from shooting a rifle (FM 3-22.9), to field sanitation (FM 21-10), to conducting counterinsurgency (JP 3-24). If a member of the armed forces needs to know something, there is probably an approved method published in some multipage manual. How to plan an operation is no exception.

JP 5-0, *Joint Operation Planning*, is the publication military professionals use as a guide to creating plans, orders, and training. It is an authoritative publication that governs all branches of the military for joint operations, interagency coordination, and multinational operations.⁵³ It is essentially a “how to” guide for tying day-to-day events to the desired strategic and military end-states.

A simple word search of JP 5-0, a 264 page document, shows the word “complex” turns up 23 pages and “complexity” only seven pages. This doctrine promises an appreciation for complexity and open systems with passages such as: “Notwithstanding a commander’s judgment, education, and experience, the operational environment often presents situations so complex that understanding them—let alone attempting to change

⁵²Connolly, 174.

⁵³Joint Chiefs of Staff, JP 5-0, i.

them—exceeds individual capacity”⁵⁴ However, the doctrine reads as a cookbook treating the operational environment as a closed system. Throughout JP 5-0, there is an underlying tone of “If we do these things, in this order, then we will reach our desired end state.”

The key elements of doctrine to be examined vis-à-vis Parsons and Connolly follow Chapter 3 of JP 5-0. Examined first are operational art and operational design. I then introduce the operational approach. These three topics demonstrate the ontology of the doctrine by illustrating the tendency of explicit descriptions and implicit meanings. Second, I will describe how doctrine “sees the world” through the operational environment. PMESII begins the actual application of causal theories to doctrine. Also, the systems perspective, and tendencies and potentials are examined as part of understanding the operational environment in relation to the theorists. Developing the operational approach rounds out the discussion of the operational approach. Third, I will describe some elements of operational design will be described using ideas from the theorists. Finally, the importance of assessment is examined.

Operational Art

JP 5-0 has little written about operational art past its definition: “the application of creative imagination by commander and staffs – supported by their skill, knowledge, and experience.”⁵⁵ No doubt that the “art” of the military profession is difficult to explain. It is exactly this reason that effort should be made toward its description. JP 3-0, Joint

⁵⁴Ibid., III-6.

⁵⁵Joint Chiefs of Staff, III-1.

Operations, further describes operational art as a “thought process” allowing commanders to “efficiently and effectively employ military capabilities to accomplish their mission” and as something that helps commanders and their staff “overcome the ambiguity and uncertainty of a complex operational environment.”⁵⁶

Operational art is exactly what the name implies, it is art. It is the “big picture.” But what does that picture look like? Is it a paint-by-numbers where all the lines are already drawn and each color has its place? Is it a series of if-then situations where one action leads to a proportionate reaction? If this were the case, then military practitioners could simply apply Parsons’s logics to determine what needed to be affected and how. In effect, this would negate the need for operational art all together. Military professionals could simply apply a scientific examination, come to a logical conclusion of the required intervention, and apply it. Or does operational art look more like an abstract painting with what looks like completely unrelated objects superimposed on each other to all but the most trained eyes? Is the operational environment so complex and convoluted that commanders cannot discern the separate open systems at play?

The goal of operational art is to create an impressionist painting where the overall subject of the painting is clear, where the open systems are identifiable. In doing so, the influence of Parsons’s logics can be applied, but the overall picture is not reduced to the point that it is segmented into elementary color schemes. To this end, commanders often use either their own past experiences or those of someone in a similar situation.

⁵⁶Joint Chiefs of Staff, Joint Publication 3-0, *Joint Operations* Change 2 (Washington, DC: United States Department of Defense, 22 March 2010), IV-3.

Operational art is, however, more than simply applying previous lessons learned to a new situation in which a commander encounters. It is more about understanding why those lessons learned applied to that specific situation and what that could possibly mean for the current situation. It is about having an appreciation for Connolly's "open systems," "pregnant moments," and "emergent causation." It is about realizing the complexity of the operational environment while maintaining the humility to realize the limitations to the actual influence they can apply and that, regardless of effort, there may also be a gap in our understanding. Operational art should, realistically, be applied throughout the entire process of understanding the operational environment, production of orders, and the continual assessment of the situation and progress. Commanders link the ends, ways, and means using operational art. The "ways" contains within it the ideas of causality. "What sequence of actions is most likely to achieve those objectives and the end state?"⁵⁷ Operational art is the military's apparatus used to connect Parsons's themes of direct causation with Connolly's emergent causality.

Operational Design

Operational design is described in greater detail through JP 5-0. Operational design is "a process of iterative understanding and problem framing that supports commanders and staffs in their application of operational art with tools and a methodology to conceive of and construct viable approaches to operations and campaigns."⁵⁸ It is much more direct in nature calling to use terms such as "lines of

⁵⁷Joint Chiefs of Staff, JP 5-0, III-1.

⁵⁸Ibid.

effort” and “effects.” Operational design gives the commander and staff tools that can be useful in sorting through the thought process of how to get from the current situations to the desired end state. The interaction between operational art and design could house the gap between cause and effect about which Connolly writes.

In a single section of operational design, JP 5-0 attempts to encompass complexity:

The proximate cause of effects in complex situations can be difficult to predict. Even direct effects in these situations can be more difficult to create, predict, and measure, particularly when they relate to moral and cognitive issues (such as religion and the “mind of the adversary,” respectively). Indirect effects in these situations often are difficult to foresee. Where there is sufficient intelligence available to predict the direct effects reliably, some of the commander’s objectives can also be achieved indirectly. Some military objectives can be achieved by influencing political, economic, social, and other systems in the operational environment. However, indirect effects often can be unintended and undesired since there will always be gaps in our understanding of the operational environment. Commanders and their staffs must appreciate that unpredictable third-party actions, unintended consequences of friendly operations, subordinate initiative and creativity, and the fog and friction of conflict will contribute to an uncertain operational environment.⁵⁹

The appreciation for Parsons and Connolly contained in this passage should certainly be commended. The beginning sentence is a direct reference to the possibility of emergent causality. However, in all but the most simplistic of environments, Connolly would argue the immediate cause of effects may be impossible, not just difficult, to predict. The “moral and cognitive issues” above are directly relatable to Parsons’s ideational theme of causality. “Indirect effects” is another way to describe Connolly’s idea of two resonance machines interacting to create something novel and unpredictable. The unintended nature of either the indirect effects or of friendly operations is

⁵⁹Joint Chiefs of Staff, JP 5-0, III-21.

encompassed in institutional logics of causation. Subordinate initiative, creativity, and the fog and friction are all descriptions of litter or pre-adaptations within one open system poised to influence another open system in possibly (probably) unforeseeable ways.

There are references to the previous discussions of both Parsons and Connolly throughout this passage. However, it is just one small paragraph in a 264 page document and is easily overlooked among the numerous direct references.

Operational Approach

The importance of the operational approach is found in the transition from understanding to action. Commanders and their staff must bring “adequate order to complex problems to facilitate further detailed planning.”⁶⁰ An understanding of the operational environment is paramount to the operational approach. However, “the operational environment often presents situations so complex that understanding them—let alone attempting to change them—exceeds individual capacity.”⁶¹ In the following pages, as the operational environment is explored, an overall appreciation for Connolly’s theories of emergent causality and open systems will allow for a deeper understanding of the operational environment. Likewise, Parsons’s four causal themes can be fruitful in understanding the relationships between the different actors and their respective environments.

⁶⁰Joint Chiefs of Staff, III-6.

⁶¹Ibid.

Operational Environment

Understanding the Operational Environment is key because it gives the commander and staff an appreciation for what can be acted on, how it can be acted on, and points to some possible outcomes. This understanding helps commanders “to better identify the problem; anticipate potential outcomes; and understand the results of various friendly, adversary, and neutral actions and how these actions affect achieving the military end state.”⁶² In short, military professionals strive to understand the operational environment in order to create possible cause and effect relationships.

To begin a conversation concerning the operational environment, it must first be defined. According to JP 5-0, the operational environment is “the composite of the conditions, circumstances, and influences that affect the employment of capabilities and bear on the decisions of the commander.”⁶³ In an attempt to focus the reader, JP 5-0 includes: “It encompasses physical areas and factors of the air, land, maritime, and space domains and the information environment (which includes cyberspace). Included within these areas are the adversary, friendly, and neutral actors that are relevant to a specific joint operation.”⁶⁴ Moreover, and in the spirit of causality, the extent to which these actors can influence the physical areas and factors must be a significant portion of the understanding.

Complexity and ambiguity are instrumental for exercising the mental faculties of a commander and staff, but they do not facilitate action. In order for a military unit to

⁶²Joint Chiefs of Staff, III-8.

⁶³Ibid.

⁶⁴Ibid.

accomplish the tasks set forth, the operational environment must be described in more concrete terms with interactions that can be quantitatively and/or qualitatively described. However, there lies a danger in trying to oversimplify a complex environment. As Ryan states: “an understanding of complex systems suggests that we would be better served by focusing on exploiting the transformative potential of sources of uncertainty and surprise, to view irreducible uncertainty as an opportunity to disorient the adversary rather than a risk to mitigate.”⁶⁵

Military practitioners employ an analytical framework called PMESII “to analyze the operational environment and determine relevant and critical relationships between the various actors and aspects of the operational environment.”⁶⁶ A discussion of PMESII provides an excellent opportunity to begin a discussion of causal relationships through Parsons and Connolly.

PMESII

PMESII is an acronym for political, military, economic, social, information, and infrastructure and is intended to be an all-encompassing framework from which a staff can break down the operational environment. In analyzing PMESII, commanders begin to approach what is important to the environment and what they believe they can affect. The logics proposed by Parsons can give commanders a different perspective from which to analyze PMESII. When analyzing a population, determining the specific reason for a lack of education would yield different objectives depending on which of Parsons’s logics was

⁶⁵Alex Ryan, “The Foundation For an Adaptive Approach: Insights from the Science of Complex Systems,” *Australian Army Journal* 6, no. 3 (Summer 2009): 76.

⁶⁶Joint Chiefs of Staff, JP 5-0, III-9.

found to be at play. For example, is the education lacking because: (1) they do not have the infrastructure; (2) it is an unforeseen consequence of a farming society; or (3) some aspect of their belief system does not place a premium on the ability to read and write? Simply put, understanding the most basic influences, whether they be structural, institutional, ideational, or psychological, will equip the commander with a better understanding of what he should focus on to nudge the environment toward the desired response.

While the concept of the individual systems favors Parsons, the interplay of PMESII is in line with Connolly. If each part of the PMESII framework is considered an open system, then the interplay between them is exactly in line with Connolly's concepts of force-fields. It is exactly this interaction between the different systems that is unpredictable, possibly due to "pre-conditions." The effect one force-field will have on another and how that interaction will influence a third is irreducible to efficient causation. JP 5-0 begins to develop an appreciation for Connolly with the description of the systems perspective.

Systems Perspective

The systems perspective is an attempt at understanding "the series of complex, interconnected relationships at work within the operational environment."⁶⁷ This is continued with: "Most important to this analysis is describing the relevant relationships within and between the various systems that directly or indirectly affect the problem at

⁶⁷Joint Chiefs of Staff, JP 5-0, III-10.

hand.”⁶⁸ But it is these relationships that hold the key to beginning to understand the operational environment and how actions can influence the overall picture. It is still only a beginning. Within these connections is the potential for variation.

Although JP 5-0 hints at emergence with the description of these relationships, it falls short by treating them as static. Once they are determined, they can be acted on and the two systems connected by them should change in the way previously determined. However, it is because of “vibrations, bits of noise, and litter in each system that do not fit perfectly into it, that new things can come into being, ruffling an established set of connections or throwing them into crisis.”⁶⁹ While JP 5-0 describes these relationships as something concrete to be acted upon, Connolly believes these relationships are primarily fluid, changing even if the systems are in relative equilibrium.

Tendencies and Potentials

Faced with a narrowing likelihood of forecasting possible outcomes, JP 5-0 gives military practitioners something from which plans can be made: tendencies and potentials. Tendencies reflect the inclination to think or behave in a certain manner.⁷⁰ While a historical perspective (i.e. lessons learned) can provide important context for this, applying Parsons’s logics can provide a deeper analysis. Parsons can help to explain why a tendency is present. Is it in line with their belief system (ideational)? Is it because of the resources available (structural)? Is it because of some perverse result

⁶⁸Ibid., III-11.

⁶⁹Connolly, 36.

⁷⁰Joint Chiefs of Staff, JP 5-0, 11.

(institutional)? Is it an irrational choice seen across cultures (psychological)? What combination, if any, exists? These questions not only provide a more inclusive analysis, they also facilitate adaptation if (when) the need arises.

Potential is defined as “the inherent ability or capacity for the growth or development of a specific interaction or relationship.”⁷¹ JP 5-0 does not attempt further explanation other than to say: “The desired end state accounts for tendencies and potentials that exist among the relevant actors or other aspects of the operational environment.”⁷² Connolly also speaks of fecund, or pregnant, moments in time. These are nothing more than points in time when the interaction of two or more systems begins to resonate such that pre-adaptations in one or both systems emerge to take on a new significance spawning something new or changing one of the systems. As stated previously, the pre-adaptations are unknowable in advance. This makes having the desired end state account for potentials a goal more than an expectation.

Commanders and staffs rely on the ability of a system to change. Otherwise, there would be no use in trying to affect it. In isolation, one might be able to predict the outcome of injecting a certain energy into any one of these force-fields. However, the result of that modification and how this new force-field affects those with which it interacts may be unknowable. Connolly speaks about pre-adaptations in biology as a “feature that plays one role or is redundant at one time, but upon a strategic change in the environment now becomes important and promotes a new function.”⁷³ As commanders

⁷¹Ibid.

⁷²Joint Chiefs of Staff, JP 5-0, 11.

⁷³Connolly, 18.

and their staff make plans on how to change their operational environment, certain pre-adaptations can function as a “source of unpredictability and uncertainty in the evolution of nature/culture.”⁷⁴ It is not until the action is completed that a retrospective analysis of the events uncovers an unknown pre-adaptation linked to the current outcome. Consider a simple device such as a timer. It is not until the “system” of IEDs is influenced by the “system” of convoys that this piece of litter becomes a pre-adaptation used by the “system” of insurgents to morph its use into a new and deadly function.

Armed with a better understanding of the operational environment and a desired end state, commanders develop an operational approach. “The operational approach is a commander’s description of the broad actions the force must take to achieve the desired military end state.”⁷⁵ It is, in plain language, what the commander believes is the best approach the operation should take in order to realize the desired end state.

Developing the Operational Approach

JP 5-0 begins the discussion of developing the operational approach with an appreciation for complexity, but finishes proposing direct causal links. “In developing the operational approach, commanders consider the direct or indirect nature of interaction with relevant actors and operational variables in the operational environment.”⁷⁶ The operational approach begins with the current conditions, or operational environment. From that understanding, commanders devise LOEs. The very nature of these LOEs (see

⁷⁴Ibid.

⁷⁵Joint Chiefs of Staff, JP 5-0, III-5.

⁷⁶Ibid., III-14.

again figure 1) calls upon direct causation. “A line of effort links multiple tasks and missions using the logic of purpose—cause and effect—to focus efforts toward establishing operational and strategic conditions.”⁷⁷ Within each LOE are objectives a commander believes will lead to a desired condition. For example, if we live among the population, if we partner with host nation forces, if we empower key leaders, if we assist the local population, then they will support their government instead of the insurgency.⁷⁸ This line of reasoning is contestable as evidenced by the work of Ollivant, Nagl, and Gentile as stated previously. All of these conditions could be met and a population might still support an insurgency, or empowering a key leader may create an environment more conducive to local civil war than stability.

Assuming these LOEs actually lead to their desired result, the operational approach proposes that the combined effect of multiple LOEs will bring forth the overall strategic desired end state. That is to say the operational approach is a large-scale cause and effect model consisting of smaller cause and effect relationships. Within each of these direct relationships resides the potential for emergent causality, the potential that accomplishing an objective in one LOE may set into action a resonance machine which brings to life some pre-adaptation in an unrelated open system creating an entirely new circumstance. JP 5-0 shows what a finished operational approach from a typical staff may look like (see figure 4). Adding the influence of Parsons’s logics to the selection of the LOE and the Supported Objectives and the possibility of emergent causality before the

⁷⁷Ibid., III-28.

⁷⁸Perez, 41.

Desired Conditions and End State, the actual events that unfold may form something more akin to figure 5.

Operational Approach - Example

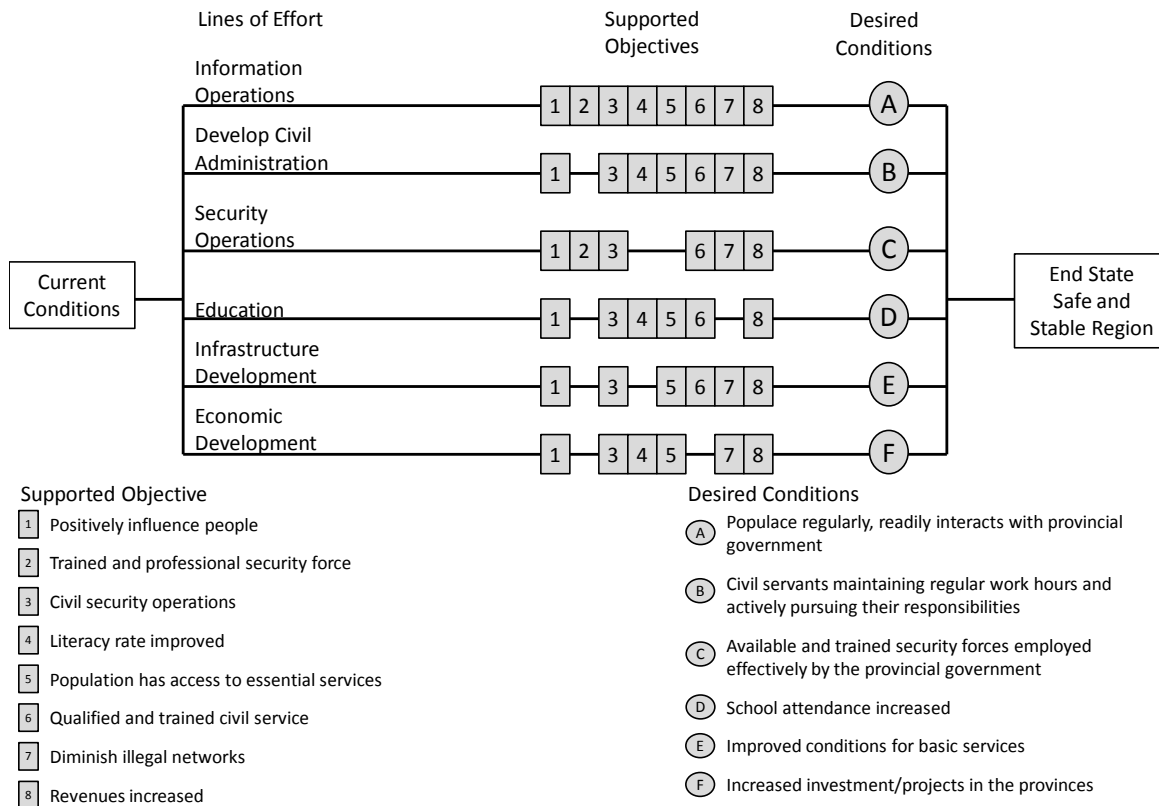


Figure 4. Operational Approach - Example

Source: Joint Chiefs of Staff, Joint Publication 5-0, *Joint Operations Planning* (Washington, DC: United States Department of Defense, 11 August 2011), 15.

Operational Approach with Parsons and Connolly - Example

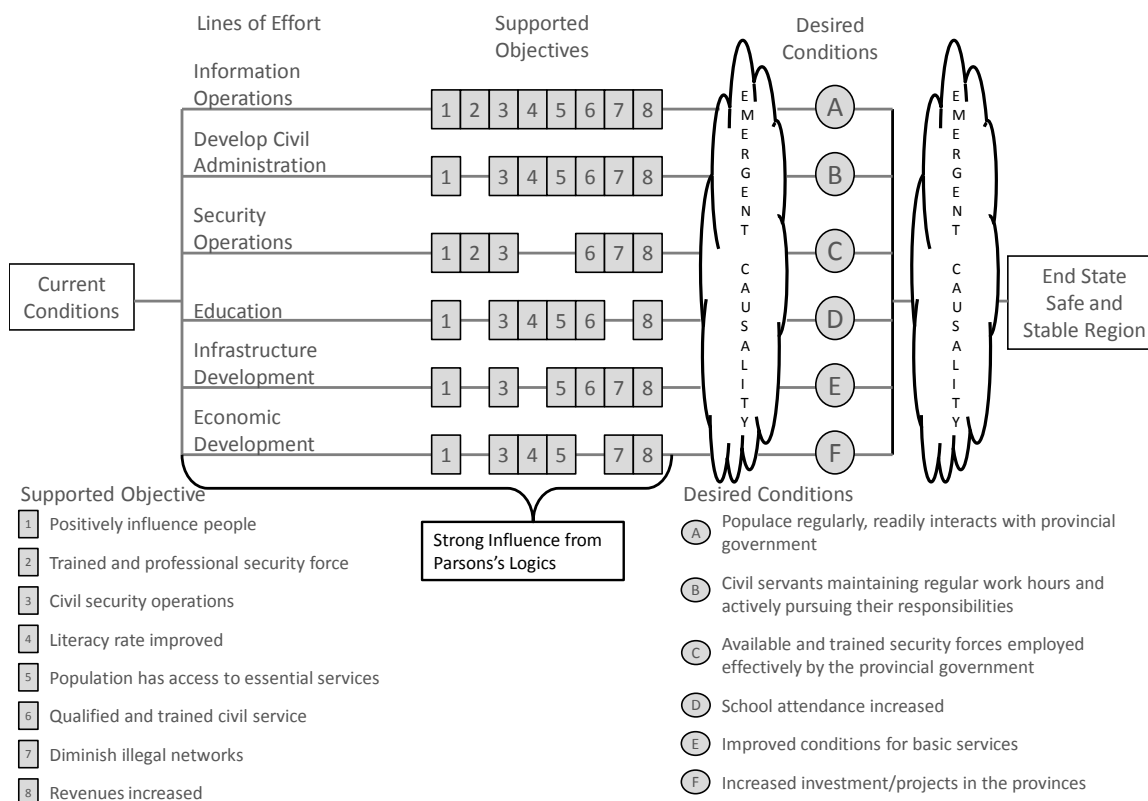


Figure 5. Operational Approach with Parsons and Connolly-Example

Source: Adapted by author. Joint Chiefs of Staff, Joint Publication 5-0, *Joint Operations Planning* (Washington, DC: United States Department of Defense, 11 August 2011), 15.

Assessment

JP 5-0 ends the chapter of operational art and operational design with more appreciation of complexity. Once all the plans are made, orders issued, and the operations are underway, military practitioners do not simply sit back and enjoy the show.

Assessment is defined as “the continuous monitoring and evaluation of the current

situation and progress of a joint operation toward mission accomplishment.”⁷⁹ This assessment is continuous from the initial planning steps to the total withdrawal of troops. It is through this lone tool that commanders and their staff attempt to deal with all the unforeseen events, all the unpredictability, all the emergence. It stands to reason the more active the assessment, the more pregnant moments can be exploited and the less a force will continue to perform actions that no longer support the mission due to some novel and unpredictable set of circumstances. Understanding complexity theory allows the military practitioner to predict the general direction of the outcome, but forces him to appreciate the possibility of unintended or unforeseen consequences. This is where assessment becomes paramount.

Assessment is particularly important as experimental intervention is practiced. Connolly describes a “seer” as someone who “does not only express premonitions about an uncertain future at protean moments. Those same skills and sensitivities are also indispensable to the formation of new maxims, judgments, concepts, and strategies at untimely moments when a collection of old precepts, habits, and standards of judgment are insufficient to an emerging situation.”⁸⁰ In this context, Connolly is speaking not only about someone who mentally explores different paths when presented with the proverbial fork in the road, but also about someone who can see the need to completely change direction. This is only possible through, thus showing the importance of, continual assessment throughout an operation.

⁷⁹Joint Chiefs of Staff, JP 5-0, III-44.

⁸⁰Connolly, 164.

An appreciation for complexity in the operating environment helps military forces start in the right direction. However, because the complex environment is full of open systems and emergent causality, participants can do the right things and do things right but still not achieve the desired results. As a final warning, JP 5-0 states: “Not all joint operations proceed smoothly toward the desired end state.”⁸¹

Lessons learned are a product of assessment, but as alluded to earlier, their greatest value is within that specific context as there will not be an exact replica to which the lesson can be applied. This is not to say that lessons learned are not important or that they should not be studied. Deconstructing events can uncover decisive moments that could have been exploited had the commander noticed them. Connolly cautions: “The forking moment can shine retrospectively, after it has assumed the aura of precondition of the present.”⁸² The greatest benefit of this analysis would be an attempt to discern the changes in the environment which led to the forking moment. The ability to sense the emergence of these changes by periodically dwelling in durational time is a lesson which could be carried from operational environment to operational environment. With enough experience, “Some figures sense that they sit on the razor’s edge during such moments, realizing that something fateful hangs in the balance, assessing potential turns from that moment even before the turns are complete, and seeking to nudge things in this direction rather than that.”⁸³

⁸¹Joint Chiefs of Staff, JP 5-0, III-45.

⁸²Connolly, 157.

⁸³Ibid.

Application

I used Parsons's and Connolly's theories to introduce a richer way to read doctrine at the strategic and operational levels of planning such that the causal aspects of military planning and execution come to the fore. I now provide a tactical-level analysis to further illustrate the applicability of these theories. John B. Richardson IV, who commands the 3rd Cavalry Regiment at Ft. Hood, reflects on his time as a squadron commander in Iraq. His paper, part of the Strategic Studies Institute's Letort Papers series includes his reflections—as a Harvard fellow—on his leadership style and practices. In the face of an unexpected threat to his men and his mission, he describes how he moved from a counterfeit style of leadership to an adaptive style of leadership.⁸⁴ His reflection provides a superb opportunity to employ a nuanced causal understanding, earlier applied to doctrine, to an actual tactical-level situation. The intent is that the theoretical insights Parsons and Connolly impart are relevant in practical, real-world settings in which the military professionals confront risks to life and limb as well as to the mission.

This application will illustrate in particular how Connolly's ontology, which includes "seeing the world" as a dynamic context wherein open systems, each with its own tier of chrono time, helps the military professional envision how a variety of historical and contemporary events and dynamics can converge at the point of an insurgent's employment of an anti-armor hand grenade against up-armored vehicles. Connolly's method requires the military professional to apply his imagination in such a

⁸⁴John B. Richardson IV, "Real Leadership and the U.S. Army: Overcoming a Failure of Imagination to Conduct Adaptive Work," in *The Letort Papers*, Strategic Studies Institute, Carlisle, PA, December 2011), 7-42.

way that historical and contemporary forces, which are usually not considered as having a bearing on nuts-and-bolts, tactical situations, are found to be relevant.

Richardson's case study will also show how military staffs and commanders might employ Parsons's causal logics to give greater rigor to their explanations for why things are as they are, as well as why—in very specific terms—they think that a certain employment of “troops, resources, speech, and relationships”⁸⁵ will yield a predicted result.

The case study in use is from Iraq 2008 to 2009 involving 5th Squadron, 4th Cavalry Regiment (5-4 Cavalry). The case study details the events leading up to the point in which 5-4 Cavalry adapted to a new threat and the difficulties with implementing these changes. During this period, 5-4 Cavalry was replacing another unit in a predominately Sunni area of the Multi-National Division-Baghdad battle space. Not known at the time, the insurgents in this area had changed tactics from employing remotely detonated improvised explosive devices to close-quarters attacks using the RKG-3 high explosive anti-tank hand grenade.

First, consider some of the interactions of open systems which lead to this event. This analysis is not meant to be all-inclusive. It is simply an example of how the different theories could be used in explanation of the events. The regime of Saddam Hussein represents an open system within the world. The U.S. government represents another. Each of these systems is influenced by a multitude of others to include international relationships, domestic economy, global economy, pressures to uphold Parsons's ideational logic of “who we are,” and so on. Each leader is influenced by the structural

⁸⁵Perez, 43.

and institutional obstacle courses created by virtue of their positions, although it could be said that being a dictator, Saddam's obstacle course is much less restrictive.

The interaction between these two open systems led to the deployment of U.S. Forces to Iraq creating yet another resonance machine between the U.S. Forces and Saddam's military resulting in the removal of the power structure in Iraq. Now consider the systems represented by the Sunni people and the Shias. The interaction of these two systems had created a resonance machine set on a different chrono-time than the machine established by the U.S. and Saddam. However, the result of the latter machine introduced disequilibrium into the former. The removal of the established system reopened a historical struggle for power, this time within the new government, between the Sunni and Shia. Consider if anyone could have predicted that from the first interaction of Saddam Hussein and George W. Bush an end result would be a reawakening of a historic civil war.

Through several iterations of interactions, the U.S. Forces, the Sunni, and the Shia found an equilibrium, albeit a tenuous one. However, not all members of these populations consider the new relationships a positive one. Thus, the insurgent open system begins to interact. But why did some of the local population not join in the relationship? Did the creation of the new government unintentionally create an environment in which one group would not receive what they believed they deserved? This might be described as a combination of institutional and ideational logics by Parsons. Or was it a completely separate system trying to take advantage of the disequilibrium (say, foreign fighters from Iran)?

Bringing us closer to the actual case study, I consider three of the many open systems: U.S. Forces, the insurgents, and the Sunni population. As the U.S. Forces and the insurgents form a resonance machine, each system begins to morph, adapting to each other's actions. Specific to the case study, the insurgent system and the U.S. Forces system had interacted for several years, each taking advantage of forking moments in an attempt to gain the upper hand. Through this interaction, the resonances had produced several outcomes.

As the insurgents learned they could not face the U.S. Forces in conventional warfare, they adapted by using improvised explosive devises. This new resonance interacted with the U.S. Force's need to maintain mobility leading to the development of sophisticated counter measures effectively defeating the insurgent's method of engagement.

Once again, a new resonance led to a new development. Instead of adapting their use of IEDs, these interactions created an entirely new system by introducing the RKG-3 hand grenade. Richardson states: "Five years of aggressive U.S. counter-IED technology and tactics had rendered the Sunni IED practically ineffective . . . If the enemy wanted to remain credible in the eyes of the population and relevant in the internal struggle for power in the Iraqi political system, he would need to adapt."⁸⁶

The introduction of the RKG-3 was an unintentional (Parsons's institutional) consequence of the U.S. effectively defeating the IED threat. But why was the RKG-3 selected? Had the insurgents tried other pieces of "litter" with less desirable effects? Was

⁸⁶Richardson, 16-17.

it purposefully selected from a host of other possibilities or was it simply a piece of “litter” with which the insurgents practiced their own experimental intervention?

Even before 5-4 Cavalry assumed responsibility for the area, two attacks with the RKG-3 had taken place. However, “No one fully appreciated the significance of the appearance of this new weapon on the battlefield”⁸⁷ after the first attack. Following the second attack, the Squadron Commanding Officer (SCO) began to take notice. It was not until the squadron experienced its own casualties during a third attack that the SCO took action by engaging the Sunni leaders. Why was this selected as the first course of action?

The SCO was operating within the structural limitations of conducting counterinsurgency operations. However, that structure created an unintended consequence of limiting the SCO’s possible choices. Here we also start to see some more open systems at play. The U.S. Army is considered a resonance machine with its own open systems. In Richardson’s words: “A military organization is a system of systems, made up of different factions, each with its own loyalties, values, and relationships within the system.”⁸⁸ In this study, the U.S. Army is categorized as “a hierarchical organization prone to risk aversion.”⁸⁹ It could be argued that this aversion to risk is an unintentional result of the sincere desire to create as safe of an environment as possible. However, this aversion to risk also creates an environment in which those who operate in it find comfort in repeating actions that provided positive results in the past. Said another way, this environment is a detriment to creative thinking. As a result, the SCO did the same thing

⁸⁷Ibid., 11.

⁸⁸Richardson, 18.

⁸⁹Ibid.

he knew worked in the past; “The SCO . . . provided motivational speeches about greater vigilance and enforcing standards of current TTPs to inspire and calm”⁹⁰ his troops and he asked his commander to confront the local leadership at a neighborhood council meeting.⁹¹

This seemed to have worked until over a month later when the unit was attacked again. Now was the time for the SCO to “dwell in durational time.” It was not “until he stepped back from the problem, actively listening and sensing the environment, reflecting, then properly diagnosing the problem,”⁹² that the SCO decided to create his own resonance through experimental intervention.

The technical aspects of the exact modifications enacted by the squadron are of little importance to this application of the case study. However, the thought process involved with the modifications as well as the implications of employment provides several examples from which causal claims can be researched. Through a working group of selected leaders, the first set of modifications for the “RKG-3 holistic defeat approach were born: attacking the thrower, attacking the network, and co-opting the population.”⁹³ This is typical of the cause-and-effect relationship born from the decision making process used throughout the military. In particular, this line of reasoning stops at the desired result with no explicit thought to what would happen if the enemy did not react in the manner which is predicted.

⁹⁰Ibid., 14.

⁹¹Ibid., 15.

⁹²Ibid., 8.

⁹³Ibid., 21.

In order to attack the thrower, the working group developed two radical ideas of decreasing the armor surrounding the gunner and exchanging the crew-served weapon for a shotgun. The current armor and weapon employment were adaptations influenced by previous systems before the introduction of the current resonance machine. The increased armor had been a modification brought about by the earlier interactions of the convoys and the IED systems representing a structural causal logic. However, this adaptation created an unintentional consequence of a dramatic decrease in visibility and maneuverability.

Once the convoy system began interacting with the new system of the RKG-3, a different resonance was created requiring a solution to the institutional result of decreased visibility and maneuverability. Willingly giving up what had always been believed to be protection by the armor was a radical idea not thoroughly embraced by the squadron as a whole. Even though a working group of respected leaders developed the idea, members of the squadron were uncomfortable with it. The reason, or cause, of this reaction is rooted in Parsons's psychological causal logic. More specifically, this could be a retrievability bias⁹⁴ or an anchoring trap⁹⁵ as both mechanisms gain their power through the person's memories. As Richardson reports, some of the squadron members "with multiple tours in Iraq (some saved by armor protection from IED attacks in previous tours) protested that these adaptations assumed unnecessary risk."⁹⁶

⁹⁴Williams, 42.

⁹⁵Hammond, Keeney, and Raiffa, 120.

⁹⁶Richardson, 23.

Likewise, removing the crew-served weapon from the turret in exchange for a shotgun met heavy resistance. This change was completely logical when viewed in light of the current threat. The RKG-3 attacks required the thrower to be in close proximity, not 1,000 meters away where the firepower of a machinegun would prove more beneficial. But the “abandonment of the crew served weapons so ingrained in the mindset as ‘how we do business’ and the introduction of nonlethal rounds in combat induced high levels of discomfort.”⁹⁷ One of the key components of Parsons’s psychological causal mechanism was that they almost always lead to irrational actions.⁹⁸ In this case, the members were more comfortable with “how we do business” than with a more logical (rational) idea. They were victims of the status quo trap.⁹⁹ The introduction of the nonlethal rounds serves as a reminder that the insurgents and 5-4 Cavalry do not create a closed system devoid of the ability to influence its surroundings or be influenced by it. The choice of ammunition was very much influenced by the third system in our consideration for this example: the Sunni population.

As Richardson points out: “Despite future success and validation of the adaptations, this small group of holdouts never saw the value in the innovations, experimentation, and ultimately the feasibility of the adaptive work. This fact further accentuates the challenge of leading people through the learning process when they hold threatened strong beliefs and trusted practices.”¹⁰⁰ Understanding what caused this

⁹⁷Richardson, 27.

⁹⁸Parsons, 12.

⁹⁹Hammond, 121.

¹⁰⁰Richardson, 25.

discomfort could help commanders develop techniques to ease the transition creating a more effective and efficient transition whenever different systems interact and create a resonance not previously experienced.

But what would have happened if the insurgents had adapted to this new technique by reverting back to IEDs? The case study would read entirely different. It would no longer be a positive story about adaptive leadership. It would be a condemning account of one officer's short-sightedness and assumption of too much risk. The insurgents chose a different path and did adapt in this way. Instead, they stopped attacking 5-4 Cavalry and only attacked transiting units not employing the new tactics.

After one such unit was attacked and suffered a casualty, the higher headquarters began referencing the new tactics with the expectation that any unit transiting the area would implement them. This was not the case. The other units had not experienced the same attacks that led the 5-4 Cavalry's adaptation. Those units were subject to the same psychological mechanisms that were at play within the hold-outs of 5-4 Cavalry when they first proposed the changes.

The 5-4 Cavalry, once again, took advantage of this pregnant moment by adapting to the enemy's new methodology. This time, when they conducted patrols, they gave the appearance of a transient unit hoping to entice the insurgents into attacking the convoy.¹⁰¹ This logic relies on two direct causal relationships. The first aspect was that the insurgents would, in fact, attack their patrol if they gave the appearance of a transient unit. Second was that if they attacked, and if 5-4 Cavalry countered the attack, then the insurgents would no longer attack convoys because they could not discern whether the

¹⁰¹Richardson, 31.

convoy was transient or not. Had the insurgents not attacked the convoy or had the convoy not been able to thwart the attack, the adaptation would not have proved effective.

I demonstrate through this case study how distal systems (Saddam Hussein's regime and the U.S. Government) can interact in such a way that influences proximal systems (5-4 Cavalry deployment and RKG-3 employment). Parsons's causal logics are active throughout the spectrum of these systems creating pressures to act in some instances and presenting obstacles in others. Through the interaction of these systems, a SCO can find himself cutting armor off of turrets in the desert of Iraq.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

In the preceding chapter, I describe Parsons's four logics of causation and illustrated that a given event could have more than one logic at play. Next, I explain how Connolly uses concepts from the natural sciences and applies them to political theory. While some of the terminology may be foreign to political theory, each of the concepts illuminates complexity in a different manner. I use JP 5-0 as a guide for a discussion on how an appreciation of Parsons and Connolly lead to a richer, deeper understanding of both the implicit and explicit causal references in doctrine. As a result of dissecting the doctrine, I demonstrate that JP 5-0 has an ontology of warning against complexity but ultimately delivering direct causal relationships. As Connolly summarizes: "The lesson is that you must act forward in a world replete with uncertainty, sensitive to possible ways in which old habits may be out of touch with new developments."¹⁰² The analysis was completed with the application of the causal theories to a real-world event.

By applying theories of causality to both doctrine and a tactical level case study, I show how a combined model formed from the theories of Connolly and Parsons can be used by military practitioners to better understand relationships between cause and effect in areas of conflict.

Military practitioners are forced to interact with the world. They cannot simply look at a problem, make a plan, and theorize why it will or will not produce the desired results. Moreover, the world "is quickly becoming a world of multiple minorities,

¹⁰²Connolly, 157.

organized along several dimensions, who will either negotiate creative ways to co-exist . . . or increasingly confront each other in bellicose struggles for hegemony.”¹⁰³ It is in this world that military practitioners must understand the relationships between the systems. The systems which comprise the military practitioner’s area of responsibility can experience temporary equilibrium. When this is the case, Parsons’s logic may be sufficient to guide the choice of actions needed to elicit the desired response. However, as the systems enter disequilibrium, the military practitioner must have an appreciation for complexity vis-à-vis Connolly.

During these periods of relative stability is when the ideas set forth by Parsons come to the fore. Military practitioners should use this time to investigate the seemingly direct relationships present in their environment. Using Parsons’s four logics will help unearth some causal relationships not readily visible or possibly lacking in understanding. Uncovering the degree to which each logic of causation influences a specific event provides a more complete understanding of the event. In turn, this allows for a more specific approach by emphasizing which logic should receive the most attention when attempting to influence the end result. It is also through this investigation that they can begin answering the questions that might arise whether a relationship between two events is correlation or causation. The ability to repeatedly tie an event to one, or more likely a combination, of the causal logics minimizes the possibility that the events were in fact mere correlation.

However, during periods of interaction among open systems, one must be willing to venture past the comfortable reasoning of direct causation. Here, one must be willing

¹⁰³Connolly, 84.

to perform experimental interventions without having upfront knowledge of how her actions will be manifested in the future. It is human nature to try to take complex situations and oversimplify them so that one can better interpret her surrounding and have a better idea of the effects those actions will have. This is precisely the point at which an appreciation for Connolly's emergent causality will benefit those who find themselves forced to interact with the world.

So how should one proceed knowing her actions may have unintended and undesirable second and third order effects? Ryan uses an excellent metaphor to describe a method of pursuing desired results:

Consider the difference between throwing a bird and throwing a rock. A rock follows the laws of physics, which allows prediction of the trajectory of the rock based on knowledge of the angle and velocity of the throw (the initial conditions). In contrast, knowing the initial conditions when a bird is thrown does not help to predict the trajectory or final destination of the bird. To restore predictability, we could tie the wings of the bird, so that it behaves more like a rock, but this seeks to control complexity by eliminating it. Instead, if we provide an attractor for the bird, such as a feeder, and some boundaries, such as a fence, then the bird may end up where we want it, even though we cannot predict how it will get there. Better yet, by training the bird to associate its goals with the owner's goals, falconry takes advantage of the learning capacity of the bird to perform dazzling feats, catch prey and return to hand.¹⁰⁴

Instead of trying to make a complex environment a simple one (tying the bird's wings so it acts like a rock), one should try to understand the bird. Using Parsons's logics, one can better understand possible causes for the way actors behave the way they do. This understanding will allow for better incentives to tempt actors to behave the way we want (attractor for the bird). An in-depth knowledge of the logics at play in an environment will also help us channel actors towards our desired end state (making the

¹⁰⁴Ryan, 84.

fence for the bird narrower). All the while, keeping in mind unforeseen events may arise through emergent causality (area of the fence not in direct line to the attractor) and we must constantly assess the environment and the progress towards the end state (it is a bird after all).

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LTC Celestino Perez, Jr.
Department of Joint and Multinational Operations
USACGSC
100 Stimson Ave.
Fort Leavenworth, KS 66027-2301

Col Michael G. McCoy
Marine Corps Element
USACGSC
100 Stimson Ave.
Fort Leavenworth, KS 66027-2301

Mrs. Joyce P. Dimarco
Department of Command and Leadership
USACGSC
100 Stimson Ave.
Fort Leavenworth, KS 66027-2301