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Design Theory and the Military's Understanding of Our Complex World

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*Author's Note: Before readers pull their hair out in frustration at yet another 'Design' article with too much philosophy, abstraction, and unorthodox thinking, I offer an intellectual olive branch of sorts. There is a reason hardly any of these Design concepts will ever enter Army doctrine, or become a step within a planning process...**to think about Design requires us to think from a different perspective**- a perspective that lacks the very things we hold dearest to how we function and plan as a military. Design logic requires us to let go of how we are used to thinking, and embrace uncertainty for a bit. If any of the post-modern and highly abstract concepts offered in this article help generate some discourse, creative or critical thinking, then these Design concepts have potentially armed the reader with another arrow for his quiver- albeit a 'crooked' arrow. And when the day comes that one must fire at an unexpected 'crooked' target, their planning quiver will hold just the right munition to fire away...*

How does the military understand the world? Since armies are composed of humans, perhaps a better meta-question might ask how human societies attempt to think about the world. If humans are only capable of partially understanding reality due to its complexity and human cognitive limitations, then are some viewpoints better than other ones? Do we make better sense of the world than our enemies? Do we see the world better than our forefathers? Or, do we just employ different logical constructs that feature differing advantages depending upon a wide array of complexities and changing factors? This article presents the concept of 'system of logic' as a way of visualizing and explaining the coherent framework of empirical material (things) and conceptual processes (ideas) that humans organize to make sense of the world. Everyone thinks in order to make sense of the world around him or her, whether that logic relies on theoretical concepts that might be *Clausewitzian*-based, or follows a unique ideological framework that employs radically different logic.¹ This article contends that the U.S. Army, as a subcomponent of greater western society, exclusively relies upon a Clausewitzian war philosophy and linear reductionist logic that approaches most problems with the scientific method, as explained below.

Termed 'detailed planning logic' by this author, Clausewitz's military theory and the interrelated works of Antoine-Henri Jomini, Alfred Thayer Mahan, and other western military strategists represent key building blocks within the theoretical concepts comprising the western military's preferred method of making sense of the world (system of logic).² Although

¹ Anatol Rapoport (editor), *Editor's Introduction to On War*, Carl Von Clausewitz, *On War* (Penguin Books, 1968) 12-15. Rapoport explains alternate political, eschatological, and cataclysmic war philosophies that each present a distinct worldview different from Clausewitz.

² John L. Romjue, *American Army Doctrine for the Post-Cold War* (Fort Monroe: Military History Office, United States Army Training and Doctrine Command, 1997) 11. "For the American Army, the dominant influence on 19th century tactical thinking came from writings derived from the experience of the Napoleonic Wars. Primary in influence were the writings of Major General Antoine Henri Jomini, whose *Precis de l'Art de la Guerre* was published in 1838. Jomini's intent was a systematic

traditional military thinking made sense of the world for previous generations, the increasing complexity of the 21st century may make the way military organizations think about the world inadequate. Consider how unexpected the recent ‘Arab Spring’ was for instance, or the many twists and turns in Iraq and Afghanistan over the last decade. America has preferred the traditional military logic that won multiple global hot and ‘cold’ wars and helped plant the first national flag on the moon in the 20th century, but is that methodology helping or hurting the U.S. Army as it continues in the present era of persistent, asymmetric conflict? Design offers a different and potentially more useful logic for making sense of complexity.

This article uses the term ‘detailed planning’ methodology because the U.S. Army attempts to make sense of the world through reductionist and mechanistic concepts that result in an emphasis on description and rigid procedures.³ Consider the many procedures and steps within virtually everything the military does, from strategic planning sessions down to conducting physical training at the platoon or squad level. Reductionism breaks things apart and relies on categorization and description; these core tenets fueled humankind’s leap into the Scientific and Industrial Ages, and it has become quite difficult to escape her seductive embrace.⁴ In many ways, western militaries struggle to think about the world in any other way.⁵ Granted, more than just military organizations in the west think this way, but for purposes of this article, we shall consider the military exclusively. “Contemporary society has ambitions of solving complex problems through technical understanding...the first strategy is to reduce complex problems by gaining tight control over behavior. It is a mechanical solution in the style of differential equations and Newtonian calculus.”⁶ Does this thinking methodology still make sense of an increasingly complex world where reducing things down does little to understand them?

When an organization such as the U.S. Army uses a system of logic to attempt to understand the world, the success or failure of that logic with regard to how the world behaves becomes the source of confusion and tension for the military. In other words, a logic needs to be somewhat useful in anticipating the future world so that humans continue to abide by it. Societies accepted the world as flat and the center of the universe for centuries, but eventually other superior ways of thinking replaced the flat worldview, just as militaries developed better systems

search for principles in Napoleon’s mastery of battle and campaign.”; See also: Carl H. Builder, *The Masks of War; American Military Styles in Strategy and Analysis* (RAND Corporation: John Hopkins University Press, 1989) 38. See also: Francois Jullien (translated by Janet Lloyd), *A Treatise on Efficacy Between Western and Chinese Thinking* (Honolulu: University of Hawai’i Press, 1996) 11. “Clausewitz set about thinking through warfare...according to a ‘model’ form, as an ideal and pure essence, “absolute warfare”...limitless use of force that, logically, tends to lead it, in reaction to attack, to extremes (that envisaged total destruction);”

³ Qiao Liang, Wang Xiangsui, *Unrestricted Warfare* (Beijing: People’s Liberation Army Literature and Arts Publishing House, February 1999) 19. Liang and Xiangsui take an eastern perspective on western warfare. “We still cannot indulge in romantic fantasies about technology, believing that from this point on war will become a confrontation like an electronic game, and even simulated warfare in a computer room similarly must be premised upon a country’s actual overall capabilities...”

⁴ Henry Guerlac, *Vauban: The Impact of Science on War*, Peter Paret (editor), *Makers of Modern Strategy; From Machiavelli to the Nuclear Age*, (Princeton: Princeton University Press, 1986) 67. Guerlac explains the origins of military reform and how doctrine and mechanistic military philosophy integrated with changes in military form. “This cult of reason and order was not merely an authoritarian expedient, nor just an aesthetic ideal imposed by the prevailing classicism...it was the form in which the scientific revolution, with its attendant mechanical philosophy, first manifested itself in France.”

⁵ Antoine Bousquet, *The Scientific Way of Warfare; Order and Chaos on the Battlefields of Modernity* (New York: Columbia University Press, 2009) 60. “Drill and the associated surveillance of troops helped ensure political obedience and greater reliability of the military instrument for purposes of both internal rule and the settling of disputes with other states.”

⁶ Valerie Ahl and T.F.H. Allen, *Hierarchy Theory: A Vision, Vocabulary, and Epistemology* (New York: Columbia University Press, 1996) 1.

of logic for waging war.⁷ Flashy uniforms and sabers are now ceremonial, representing the evolution in warfare thinking, but they were relevant in a different era when people *made sense of the world* differently. While a saber-charge in modern Afghanistan might evoke a bizarre and somewhat comedic reaction today, it elicited a serious military response by British regulars during the First Anglo-Afghan War of 1839-1842. If a system of logic fails to make sense of an increasingly complex world for the military, how does it adapt a new methodology for thinking? In other words, when saber charges and vividly colored uniforms transitioned from assets on the battlefield to liabilities, how does the military institution discard one logic and adapt novel ones?

Figure 1 below provides a graphic depiction of the ‘system of logic’ theory that maps a cognitive template for how humans attempt to recognize the world. This model assimilates elements of organizational theory, general systems theory, political science, and post-modern philosophy. Readers that are apprehensive of combining such dissimilar theories may rest easy. Once again, Design does not discount traditional military thinking- it offers different and creative alternatives to provide dissimilar perspectives for the military practitioner. According to this article’s thesis, a system of logic relies on three building blocks that subsequently generate narratives that use the logic to attempt to explain the world and consider how one may influence the future. Humans do this instinctively; hence, thinking *about* thinking is a challenge in itself.⁸

The first building block, ‘empirical material’, represents the essential elements of matter, actors, and tangible things that compose the world.⁹ Every system of logic must address the actual physical components of the world in some fashion- every human society throughout history has done this, although many societies and organizations disagree on what many things are. For instance, a Muslim, Atheist, and Christian would all agree that the Bible is a book, but they all would differ on what the book *represented*. For another example, a dinosaur bone discovered during the Middle Ages, the 18th century, and last week would illicit many different explanations from those societies grasping with what that object was as it related to their logic. Some might explain the bone better than others, but each possessed a meaning and a logic that supported it- whether it was a monster, proof of giants, or ancient dinosaur species.

The second building block, ‘theoretical concepts’, provides “abstractions of empirical phenomena.”¹⁰ Theoretical concepts include language, mathematics, ideologies, and other intangible processes that interact with empirical material in direct or indirect ways.¹¹ Words matter and the words we choose to describe and explain things reflect our logic. Consider the word ‘horsepower’ and why we use that with combustion engines. When the first automobiles came about, those societies used existing vocabulary and concepts to explain something new that performed the work of a horse. Vocabulary represents our chosen concepts of language, while

⁷ Vladimir Slipchenko, *Future War Lecture Series: For What Kind of War Must Russia Be Prepared?* (Polit.ru Public Lecture Series transcript C47, November 11, 2004) 20-21. Slipchenko takes a non-western position on the evolution of warfare and argues that six generations of evolution describe the technological evolution of all recorded warfare.

⁸ Ahl, Allen, 18. “Meaning, and explaining the “why” of a phenomenon, come from the context. The lower-level mechanics, the “how” of the phenomenon, have nothing to say about “why.”

⁹ Eva Boxenbaum, Linda Rouleau, *New Knowledge Products as Bricolage: Metaphors and Scripts in Organizational Theory* (Academy of Management Review, Vol. 36, No. 2, 2011) 274-275.

¹⁰ Boxenbaum, Rouleau, 275.

¹¹ Gary Jason, *Critical Thinking: Developing an Effective System logic* (San Diego State University: Wadsworth Thomson Learning, 2001) 86. Jason discusses vocabulary problems when an organization blurs the boundaries of a word. See also: Hayden White, *Tropics of Discourse; Essays in Cultural Criticism* (Baltimore: The John Hopkins University Press, 1978) 1. “Our discourse always tends to slip away from our data...the data always resists the coherency of the image which we are trying to fashion of them.”

military theories we embrace reflect our concepts of what war is. Clausewitzian theory, based on the celebrated works of German military theorist Carl Von Clausewitz, establishes in some military logics, while the theories of Sun Tzu or Carl Marx, or a combination of dissimilar others might manifest in other rival logics.¹² As many avid followers of any of the aforementioned military and political theorists will point out, some of these concepts are not very compatible with others, while some nest readily with others. To frame one's primary theoretical base requires the introspection and self-editing to acknowledge which theorists provide the majority of one's conceptual framework, and which are merely 'add-ons' or extensions added to the main house. Do you believe in principles of war and centers of gravity, or are they just intellectual window dressing? Is warfare fluid like a river, or is destruction of the enemy's fielded forces a more useful concept? Is warfare an extension of politics, or is conflict a battle between good and evil, to ultimately be decided in the prophetic or divine 'end of the world' battle? These are all theoretical concepts, and relate to different systems of logic in widespread usage today.

The third building block, 'metaphors,' consist of creative transfer processes where metaphors act as "tools for understanding" that promote new and multiple ways of explaining and understanding the world through that method of thinking.¹³ Since language is a component of a system of logic, the metaphors an organization employs reflects how and why it thinks; the metaphors it ignores or are unable to use also aid in framing how one thinks. Metaphors permeate our discourse to a level that we are often not even conscious that we use them. Perhaps the best examples of metaphoric exchange occur when we encounter something strange and unknown- and we instinctively use metaphoric devices within our system of logic to *explain* the unknown. The earlier example of 'horsepower' applies here, as do many other inventions that reflect names with metaphoric content. 'Smart phones', 'automated telling machine', 'reality television' and 'computer virus' all use combinations of known words to create new terms that help explain something that represents a novel or previously unknown concept. The military does this with the many combinations of 'irregular warfare', 'asymmetric conflict', and a whole host of other terms for 'ill-structured problems.'¹⁴

Regardless of the logic system, humans use metaphors to make sense of the world by thinking and then communicating the results to others. Cultures and societies build upon shared values and theoretical concepts such as language, history, ritual, and an overarching shared methodology for thinking about the world.¹⁵ Together, these processes within a thinking

¹² Liang, Xiangsui, 19. Liang and Xiangsui take an eastern perspective on western warfare. "We still cannot indulge in romantic fantasies about technology, believing that from this point on war will become a confrontation like an electronic game, and even simulated warfare in a computer room similarly must be premised upon a country's actual overall capabilities..."

¹³ Boxenbaum, Rouleau, 275; See also: Paul Ricoeur (translated by Kathleen Blamey and David Pellauer), *Time and Narrative, Volume 3* (Chicago: University of Chicago Press, 1985) 107. "We would be not able to make any sense of the idea of a new event that breaks with a previous era, inaugurating a course of events wholly different from what preceded it."

¹⁴ Jeff Conklin, *Wicked Problems and Social Complexity*, (CogNexus Institute, 2008).

<http://cognexus.org/wpf/wickedproblems.pdf> (accessed 05 January 2011) 4-5. See also: United States Marine Corps, Department of the Navy, *Marine Corps Doctrinal Publication (MCDP) 5, Planning*, (Headquarters, United States Marine Corps, Washington D.C. July 1997), 22-23. The Marines also use Conklin and 'wicked' or 'ill-structured' problems to describe complexity in military environments.

¹⁵ Jared Diamond, *Guns, Germs, and Steel; The Fates of Human Societies* (New York, W.W. Norton and Company, 2005) 454. Diamond's thesis centers on how human societies around the world differed not through biology, but through geographic advantage and disadvantage; he builds upon this meta-claim on human societies by using a question on why Europeans, and not the Chinese expanded to conquer the New World? "Europe's fragmentation did, and China's utility didn't, foster the advance of technology, science, and capitalism..." Diamond argues that unique conditions based on bio-diversity, caloric yields of available plants, and domesticated animal selection provided advantage and encouraged one society's advance over another. Culture and values relate to how a society understands the world around them, to include what is available, but not what is unknown to them.

methodology generate narratives that infuse patterns of logic within the system and define a worldview for humans to apply to reality.¹⁶ By ‘narrative’, we mean the story which becomes a vehicle for meaning, values, and the underpinning logic that comes from that organization’s way of making sense of the world. While the term ‘narrative’ is terribly overused in military lexicon today, this article will attempt to define what it actually means instead of what we typically misapply it towards. Narratives are the products of a system of logic’s synergy of theoretical concepts, metaphors, and empirical material that ultimately explain the world within a method of thinking and anticipate how the world will react to one’s actions. If an organization subscribes to a Clausewitzian logic, their narratives will likely feature ‘centers of gravity’ while the storyline and plot will relate back to a timeless tension between governments, the masses, and military instruments of power. Societies that embrace an ideological construct over Clausewitz may have different narratives that feature a timeless struggle against infidel invaders, or perhaps the workers of the world uniting against the ‘dictatorship of the bourgeoisie.’ While each logic system represents a combination of many unique factors, the graphic below attempts to frame *one way* of depicting a generic structure for logic systems. Readers might take a moment to reflect upon what their preferred systems are comprised of, and what they are not.

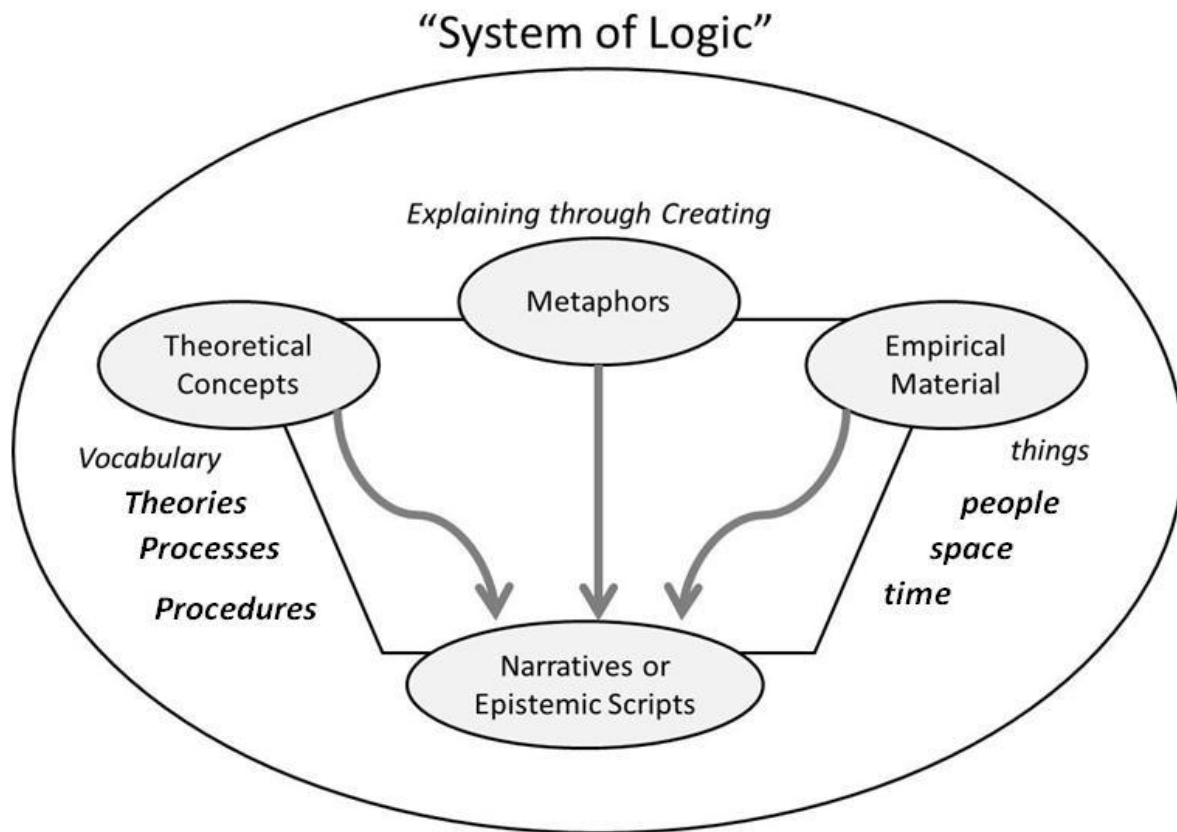


Figure 1: Depicting a System of Logic

This paper uses the theory of ‘system of logic’ depicted above as the basis for how groups attempt to recognize the world around them. There is a ‘method for everyone’s madness’

¹⁶ Ervin Laszlo, *The Systems View of the World; a Holistic Vision for Our Time*. (New Jersey, Hampton Press, 1996) 16. “Systems thinking gives us a holistic perspective for viewing the world around us, and seeing ourselves in the world.”

in how organizations and societies interact with the world.¹⁷ In all systems of logic, the empirical material remains the same ‘things’, yet how those materials are contemplated in their complexity is significantly different. Despite being the same item, consider again how a specific dinosaur bone discovered in ancient China, in medieval European times, or in the 20th century all are interpreted differently. Is it a monster, a giant, or a prehistoric creature because it seems to be like other concepts or materials as defined by a system of logic? Humans use metaphors to create new understanding by associating known things and notions with unknown or novel materials and concepts. “Primarily on the basis of linguistic evidence, we have found that most of our ordinary conceptual system is metaphoric in nature...we act according to the way we conceive of things.”¹⁸ As the dinosaur bone demonstrates, some logics appear more useful at explaining unknown things than others; but no single system of logic establishes finite dominance over all others. As complexity increases in the world, the dominant western military logic may no longer be as useful as before. Centers of gravity may have been more useful in previous conflicts than they are now, yet all of our military doctrine, education, and procedures are adamant in supporting one theoretical concept and logic over others. To put it another way, will the U.S. Army ever publish doctrine that does not include ‘principles of war’?

How a system of logic synergizes metaphors, empirical material, and theoretical concepts to produce narratives is essentially how humans attempt to recognize and influence the world around them. Some thinking methodologies work effectively under the necessary circumstances, while others work poorly at the expense of the humans applying it. In other words, the world remained flat as long as it was prosperous for humans to make sense of the world that way. When components of someone’s logic fail to make sense of the world, it generates paradoxes. When the world made more sense as a sphere instead of flat, the logic system adapted and organizations adjusted. Returning to the military, what adjustments are potentially on the horizon for 21st century warfare? In this era of persistent conflict and growing complexity, has the military triggered a paradigm shift provoking the emergence of alternate logics? In other words, when traditional 20th century planning fails to explain how a military conflict behaves today, does the frustration and confusion experienced by civilian and military leadership force the organization to critically question how and why it thinks in a particular fashion?¹⁹

The U.S. Army employs a series of organizing principles that this article defines as the ‘detailed planning’ system of logic.²⁰ Detailed planning logic attempts to understand the world

¹⁷ Liang, Xiangsui, 8. Liang and Xiangsui take an eastern perspective on understanding how the world uses technology and warfare by using vivid metaphors that are uncommon in western discourse about warfare. “Technology is like ‘magic shoes’ on the feet of mankind, and after the spring has been wound tightly by commercial interests, people can only dance along with the shoes, whirling rapidly in time to the beat that they set.”

¹⁸ George Lakoff and Mark Johnson, *Metaphors We Live By*. (Chicago: The University of Chicago Press, 2003), 3-5; Justin Kelly and Mike Brennan, *OODA Versus ASDA: Metaphors at War*; Australian Army Journal For the Profession of Arms, Volume VI, Number 3 (Duntroon: Land Warfare Studies Centre, 2009) 43. All metaphors are “incomplete and only partially appropriate representation of the phenomenon it purports to characterize.”

¹⁹ Shimon Naveh, *Operational Art and the IDF: A Critical Study of a Command Culture*, (Center for Strategic & Budgetary Assessment (CSBA), contract: DASW01-02-D-0014-0084, September 30, 2007) 3. Naveh describes how *Systemic Operational Design (SOD)* was not well received by the Israeli military institution due to similar anti-intellectualism and self-preservation processes. See also: John Nagl, *Learning to Eat Soup with a Knife: Counterinsurgency Lessons From Malaya and Vietnam* (Chicago: The University of Chicago Press, 2002) 9. “Military organizations often demonstrate remarkable resistance to doctrinal change as a result of their organizational cultures. Organizational learning, when it does occur, tends to happen only in the wake of a particularly unpleasant or unproductive event.”

²⁰ Valerie Ahl and T.F.H. Allen, *Hierarchy Theory: A Vision, Vocabulary, and Epistemology* (New York: Columbia University Press, 1996) 1. “Contemporary society has ambitions of solving complex problems through technical understanding...the first strategy is to reduce complex problems by gaining tight control over behavior. It is a mechanical solution in the style of

with a series of patterns that use theoretical concepts, metaphors, and empirical material to build narratives that explain the world within a unique thinking methodology.²¹ When one or more of the components of the logic are in friction with reality, the organization experiences abnormalities that the system of logic cannot resolve. Newtonian physics worked but accumulated numerous abnormalities and errors until Albert Einstein presented a new Special Theory of Relativity. When the airplane, machine gun, and chemical gas changed warfare during World War I, military logic adapted new strategies and tactics- but change usually followed some military experiencing a horrific surprise on a battlefield. According to Thomas Kuhn, these abnormalities trigger a paradigm shift where essentially a new system of logic emerges out of the necessity to resolve abnormalities and tension between a faulty thinking methodology and reality.²² When fixed bayonet charges ceased to have the same effect as in a previous conflict, militaries reflected upon these abnormal outcomes *and adapted*.

Unlike previous eras when detailed planning thinking could leverage military action to accomplish strategic aims, today's conflict environment appears confusing and adaptive; adversaries as well as the environment seem to stay one-step ahead of the military.²³ Historian Brian Linn criticizes the military's rigid logic in *Echo of Battle* of resisting change, maintaining "intellectual rigidity, a propensity to mistake slogans for strategic thinking, and the dogmatic belief in itself as the 'best trained, best armed, best led force' that has ever existed."²⁴ The days of Napoleonic individual genius appear to be decreasing in likelihood as modern conflict continue to exhibit greater patterns of complexity, adaptation, and self-organization.²⁵ Only simple scenarios match expected outcomes, while complex environments appear confusing despite the increased ability to collect more information.²⁶ While a vast lexicon emerged to describe the complexity phenomenon, words such as 'irregular', 'asymmetrical', 'ill-structured', and 'messy' merely describe these abnormalities that plague detailed planning explanations of how the world should function, but does not. Forcing the logic of linear causality, reductionism, and mechanistic theory to make sense of non-linear, complex systems appears to becoming a larger institutional problem for the military in the 21st century.²⁷ Granted, we may encounter a

differential equations and Newtonian calculus;" See also: Fritjof Capra, *The Web of Life* (New York: Anchor Books, 1996) 29. "In the analytic, or reductionist, approach, the parts themselves cannot be analyzed any further, except by reducing them to still smaller parts. Indeed, Western science has been progressing in that way;"

²¹ Boxenbaum, Rouleau, 272-296. Boxenbaum and Rouleau argue that knowledge production of organizational theories use a combination of concepts, empirical material, and metaphors. This paper uses their work as an inspiration for 'system of logics' function for organizations that attempt to understand the world.

²² Thomas S. Kuhn, *The Structure of Scientific Revolutions*, 3rd ed. (Chicago: University of Chicago Press, 1996).

²³ Azeem Ibrahim, *Afghanistan's Way forward Must Include the Taliban*, (Los Angeles Times Opinion Online; 09 December 2009; <http://articles.latimes.com/2009/dec/09/opinion/la-oe-ibrahim9-2009dec09> (accessed February 2011) Ibrahim quotes General McChrystal's opinion on how the American military had spent the last decade fighting in Afghanistan, "looking at the war in simplistic Manichaeian terms—save as many good guys as possible while taking out as many bad guys as possible—was a mistake."

²⁴ Brian M. Linn, *The Echo of Battle; The Army's Way of War* (Cambridge: Harvard University Press, 2007) 232.

²⁵ Alex Ryan, *The Foundation For An Adaptive Approach; Australian Army Journal For the Profession of Arms, Volume VI, Number 3* (Duntroon: Land Warfare Studies Centre, 2009) 70. "With the industrial revolution, the planning and decision-making process gradually built up a well-oiled machine to reduce reliance on individual genius." See also: Michael Fullan, *Leading in a Culture of Change* (San Francisco: Jossey-Bass, 2001) 135-136.

²⁶ Gerald M. Weinberg, *Rethinking Systems Analysis and Design* (Boston: Little, Brown and Company, 1982) 12. "If our previous experience with systems analysis proves anything, it proves that anyone who tries to use *all* the information- even about the simple systems existing today- will be drowned in paper and never accomplish anything... The synthesist is someone who makes very specific plans for action, and more often than not stays around during the execution of those plans to adjust them to ongoing reality."

²⁷ Jeff Conklin, *Wicked Problems and Social Complexity* (CogNexus Institute, 2008).

<http://cognexus.org/wpf/wickedproblems.pdf> Last accessed 05 January 2011) 4-5. "This is the pattern of thinking that everyone

future enemy that seeks conflict along the same conventional warfare processes of large-scale 20th century ‘total war’ scenarios, but most potential rivals appear to be adapting to asymmetric approaches to strategy against superpower and western military nations.

Detailed planning employs a thinking methodology that is one approach, while Design offers an unlimited variety of alternative approaches that are dissimilar to the preferred detailed planning approach. One source of confusion and failure within military organizations attempting to recognize and influence a complex world has to do with the tension between making sense of the world with detailed planning logic alone, and attempting to break out and apply different methodologies. This highlights one additional protective feature of many logic systems- the defensive characteristics that protect the logic often at the expense of adapting improvements. Often, a system of logic helps define an organization and links to core institutional tenets and values- and core values are rarely open to critical debate or change. Acting almost as protective shells, the core tenets, values, and institutional self-interests of a system of logic functions as what organizational theory terms ‘in-house assumptions’ that protects the system while often blinding it.²⁸ Readers might ponder what components of their own logic systems are beyond reproach- what elements can they not ever do without? Are centers of gravity essential, or can warfare be understood without a nodal interrelationship as operational design and joint doctrine describes? Once one identifies what is ‘essential’ to their logic, you are that much closer to thinking critically about why the world makes sense to your organization in some respects, and appears chaotic or ‘weird’ in other regards.

Design’s emphasis on critical and creative thinking threatens nearly all in-house assumptions regardless of the organizational logic because Design encourages one not only to learn, but also to ‘unlearn’ things, and ‘learn about learning.’²⁹ This non-linear process of creation, destruction, and innovation frightens those that hold uniformity, repetition, and institutionalism in high regard. Nothing is off limits, and any field or concept is open to exploration, adaptation, or inclusion in a new formation of understanding the world. This embraces uncertainty, and is quite a frightening thing for any logic that relies upon repetition, uniformity, and fixed procedures. The very best qualities of the military institution are also potentially the ones that prevent it from transforming into something better.

Detailed planning plays on many institutional biases that reinforce the preferred system logic. The military seems to want the world to behave in a manner that ‘makes sense’ according to the concepts and values associated with the thinking methodology of choice.³⁰ Consider how

attempts to follow when they are faced with a problem...this linear pattern as being enshrined in policy manuals, textbooks, internal standards for project management, and even the most advanced tools and methods being used and taught in the organization.”

²⁸ Mats Alvesson, Jorgen Sandberg, *Generating Research Questions Through Problematization*, (Academy of Management Review, Vol. 36, No. 2, 2011) 254. Alvesson and Sandberg use the term ‘in-house assumption’, ‘root metaphor’, and ‘field assumption’ to explain how organizations employ a logic that contains theoretical concepts that are ‘unproblematic’ and are often deeply tied to organizational values and identity. When these theories fail to explain the world, the organization continues to view the theory as unproblematic instead of applying critical thinking to the logic itself.

²⁹ Gilles Deleuze, Felix Guattari, (translated by Brian Massumi) *A Thousand Plateaus; Capitalism and Schizophrenia* (Minneapolis: University of Minnesota Press, 1987) 400. Deleuze and Guattari use metaphors of martial arts and the state war machine to explain how one seeks the path to affect a system through unknown ways of violence, while the other rigorously holds to the limited ‘known’ path. “Thus the martial arts do not adhere to a *code*, as an affair of the State, but follow *ways*, which are so many paths of the affect; upon these ways, one learns to ‘unuse’ weapons as much as one learns to use them...”

³⁰ Shimon Naveh, Jim Schneider, Timothy Challans, *The Structure of Operational Revolution; A Prolegomena* (Booz, Allen, Hamilton, 2009) 88 According to Shimon Naveh, Army Design doctrine demonstrates repetitive *tacticization* where military institutions “are inclined to apply knowledge they have acquired from their tactical experiences to their operational functioning

we reverse engineer most plans by starting with the end-state in the future, and building lines of effort back to the present. To do this requires us to really believe that we not only can control many aspects of the world, but we can effectively forecast the future and then force reality to generally comply with our desires. Due to the mechanistic nature of detailed planning, the Army invests heavily into techno-centric and tactical training considerations because they make sense to the organization's logic and worldview. Better weapon systems provide western societies with more lethal and precise military instruments of power; this establishes the linear causality that a stronger military delivers a more predictable victory- this seems like a logical conclusion from the detailed planning worldview.³¹

Returning to how our military prefers to plan, detailed planning uses a teleological approach where the entire process is purpose driven; the 'ends' is determined first and then directed by action (ways) with means.³² Working from the desired end-state back to the present is such a pervasive concept that it is both a constant process and generally an accepted 'root metaphor' that defies critical introspection.³³ We are hard pressed to question this methodology, and nearly all military doctrine reinforces this process so that it permeates all levels of military organization in both conceptual and detailed planning and execution. This type of thinking often oversimplifies complex systems and sets up the military organization for tactical success with strategic failure because the world is not as malleable as the detailed planning expects it to be.³⁴ The challenges of modern military conflict appear to exceed in complexity what prior generations dealt with. Cyberspace, space, social networking, and globalization all continue to make the modern world a fascinating yet 'chaoplectic' place.³⁵ Figure 2 below graphically depicts the detailed planning system of logic using the previous conceptual framework explained

sphere. In such cases, they either reduce the operational inquiry of potential opposition into a mechanical discussion or completely reject the need for a distinct learning operation;" See also: Jeff Conklin, *Wicked Problems and Social Complexity* (CogNexus Institute, 2008. <http://www.cognexus.org> Last accessed 05 January 2011) 4. "Traditional thinking, cognitive studies, and the prevailing Design methods all predicted that the best way to work on a problem like this was to follow an orderly and linear 'top-down' process, working from the problem to the solution."

³¹ Liang, Xiangsui, 140-141. Liang and Xiangsui argue that over the last 20 years, the world has grown more complex, yet the military ignore the increased complexity of war and instead focus "on the level of weapons, deployment methods and the battlefield, and the drawn-up war prospects are also mostly only limited to the military domain and revel in it."

³² James J. Schneider, *Theoretical Implications of Operational Art: On Operational Art* (Washington: Center of Military History, 1994) 25-29. Schneider takes a teleological and techno-centric view of Operational Art in his conclusion. "The future of operational art depends on today's officer corps understanding the historical and theoretical basis of the concept. Only by knowing what has gone before can it hope to build a doctrine for the future which takes full advantage of the fruits of technology;" See also: Ian Stewart, *Nature's Numbers* (BasicBooks, 1995) 28. "Goal-oriented research can deliver only predictable results."

³³ Jack Kem, *Campaign Planning: Tools of the Trade*, (Department of Joint, Interagency, and Multinational Operations, U.S. Army Combined Arms Center, Fort Leavenworth, Kansas, 2009) 15-24. Kem's synopsis of operational design demonstrates the 'reverse engineering' aspect of military planning; See also: Jeffrey Reilly, *Operational Design: Shaping Decision Analysis through Cognitive Vision*, (Department of Joint Warfare Studies, Air Command and Staff College, Maxwell AFB, Alabama, 2009) 14-23. Reilly's 'cognitive map' illustrates a reverse engineered campaign plan where one begins with the desired end-state and military termination criteria.

³⁴ Liang, Xiangsui, 141. "The enemy will possibly not be the originally significant enemy, and the weapons will possibly not be the original weapons, and the battlefield will also possibly not be the original battlefield. Nothing is definite. What can be ascertained is not definite. The game has already changed, and what we need to continue is ascertaining a new type of fighting method within various uncertainties."

³⁵ Antoine Bousquet, *The Scientific Way of Warfare; Order and Chaos on the Battlefields of Modernity*, (New York: Columbia University Press, 2009). Bousquet uses scientific metaphors in his book such as mechanistic, thermodynamic, cybernetic, and chaoplectic to explain the evolution of warfare. He associates the metaphors of a clock, engine, computer, and network to each period.

in figure 1.

Detailed Planning System of Logic

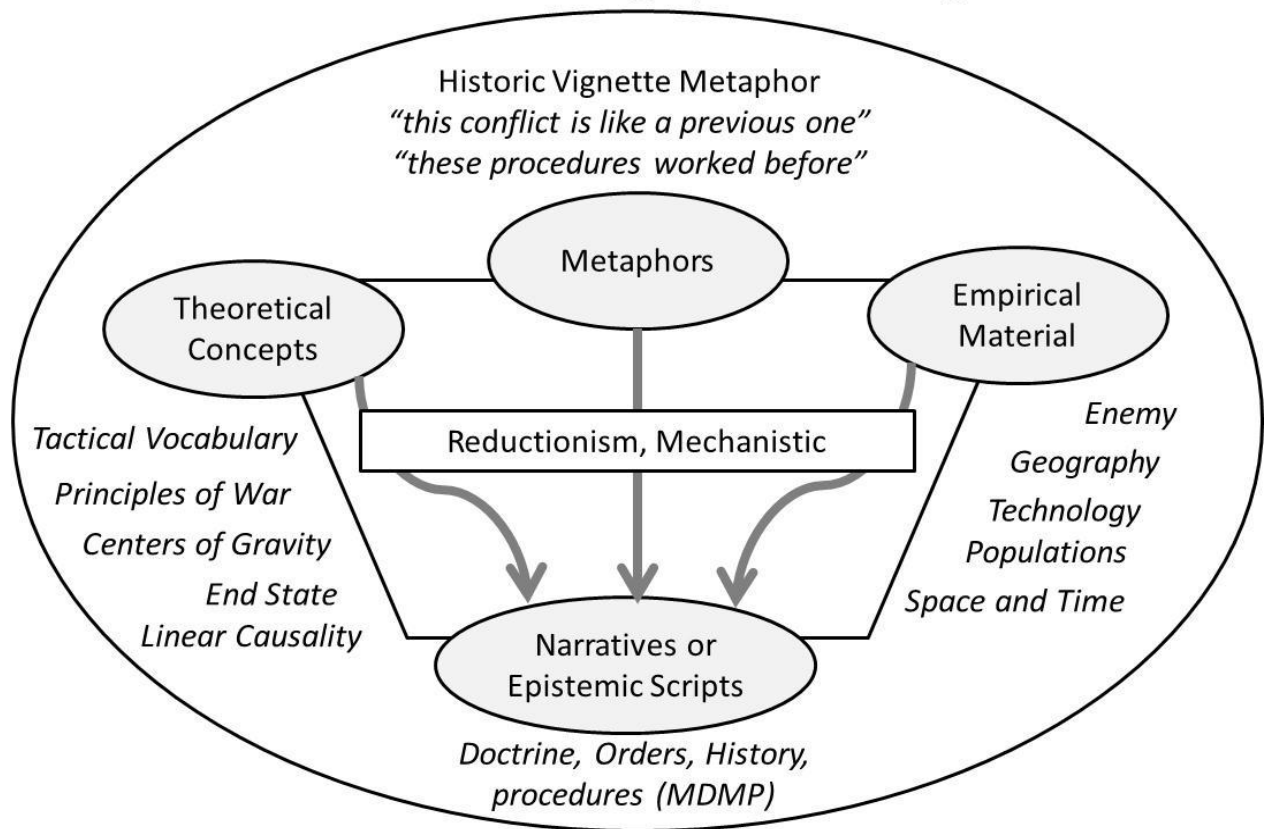


Figure 2: Depicting a Detailed Planning System of Logic

The emphasis on reductionist and mechanistic thinking cause the military to prefer description to explanation, and reduction of complexities instead of holistic comprehension- we describe each part of the bicycle in tremendous detail but never get to the assembled product being ridden to a destination. Consider how pervasive acronyms, procedures, and checklists are within military planning- the concern of information overload now eclipses the fear of information shortfall in most headquarters. Modern military staffs conduct 'deep dives' where many slides with extensive detail are briefed, yet holistic explanation is sacrificed to 'feed the beast' with information, metrics, graphs, statistics, and measures of performance. Does the military distinguish between description and explanation, or assume one follows the other?

Description aids under some conditions, but potentially overwhelms an organization in others. John Lewis Gaddis remarks in *The Landscape of History* that while a historian could fill volumes with what Napoleon did while getting dressed on the morning of Waterloo, that description would provide little help in explaining why he lost the battle.³⁶ Many of these 'deep dives' with military organizations demonstrate the narrative where more detail will yield to explanation- yet mountains of statistics on any topic does not usually translate into understanding

³⁶ John Lewis Gaddis, *The Landscape of History: How Historians Map the Past*, (Oxford, New York, 2002) 27.

the emergence of a complex system. We just end up convincing ourselves that the description is good enough to make decisions with.

As the second building block, detailed planning logic uses metaphors that are often limited to historical vignettes and patterns of linear causality where future conflicts correlate to earlier ones. Historian Carl H. Builder argues in *The Masks of War* that military institutions are generally motivated towards institutional survival, evoking ‘golden eras’ of past wars, and the continued idolization of self-defining behaviors, traditions, and structures.³⁷ How often has a military organization used a previous conflict to help make sense of a current one, even when they are comparing apples and oranges? How often has the military prepared to win the previous conflict while setting up the current force for immediate failure in the next conflict? This illustrates the danger of relying exclusively on historical vignette metaphors.

The third building block comprising empirical material is self-explanatory, yet detailed planning theoretical concepts use vocabulary and frameworks that relate back into reductionism and mechanistic methodologies. For example, Clausewitz’s trinity of violent emotion, chance, and political motives correlates to the empirical materials consisting of people, the army, and government in *On War*.³⁸ Each of these building blocks leads to detailed planning narratives that take the familiar form of doctrine, prescriptive principles of war, and rigid planning procedures such as the Military Decision Making Process (MDMP).³⁹ As depicted in figure 2, the military’s preferred model for making sense of the world accumulated many successes in the 20th century and often remains effective in many conflict environments. However, does the military need to attempt to apply it to *every* environment, even those that appear to resist reductionism? Can an organization question whether failure occurs because of the logic employed, or must it always be user error? For instance, has an organization ever conducted an After Action Review (AAR) and questioned the existing doctrine, processes, and institution instead of focusing on the practitioners themselves? What happens when the user follows a logic perfectly, but the logic itself was faulty? In a perplexing ‘Catch-22’, the operators must be wrong, because our doctrine and processes must be right.

Military organizations struggle today with complexity. 21st century complex environments appear to be unpredictable, chaotic, and often unresponsive to the reductionist and mechanistic narratives generated by the detailed planning system of logic. General McChrystal’s opinion on how the American military has spent the last decade fighting in Afghanistan is a telling example. “Looking at the war in simplistic Manichaeian terms—save as many good guys

³⁷ Carl H. Builder, *The Masks of War; American Military Styles in Strategy and Analysis*, (Baltimore: The John Hopkins University Press, 1989) 11,17; See also: Anne-Marie Grisogono, Alex Ryan, *Adapting C2 To The 21st Century; Operationalising Adaptive Campaigning* (Edinburgh: Australian Department of Defence, Defence Science and Technology Organization, 2007) 3; See also: Scott Winter, *Fixed, Determined, Inviolable; Australian Army Journal For the Profession of Arms, Volume VI, Number 3* (Dunroon: Land Warfare Studies Centre, 2009) 58. Winter echoes Builder’s sentiment discussing Australian military culture. “It is therefore not a single or homogenous culture, but a culture of sub-cultures that defines a military. This ‘density’ of culture has a profound effect on the ability of armed forces to accommodate radical change, as this in turn relates to the bureaucratic aspect of military culture.”

³⁸ Carl Von Clausewitz, *On War* (Penguin Books, 1968) Chapter 1.

³⁹ Nassim Nicholas Taleb, *The Black Swan*. (New York: Random House, 2007), 16. “Categorizing always produces reduction in true complexity.” See also: Fritjof Capra, *The Web of Life*. (New York: Doubleday, 1996), 29. “In the analytic, or reductionist approach, the parts themselves cannot be analyzed any further, except by reducing them to still smaller parts.” See also: United States Army Training and Doctrine Command, *Field Manual 3-0; Operations*. (Headquarters, Department of the Army, 2001), 4-11. Most of the current principles of war found in U.S. Army Field Manual FM 3-0, *Operations* (2001) espouse the same doctrine and war methodology first penned by Jomini in the wake of the Napoleonic Wars. The principles of war are also listed in Joint Publication 3-0, *Joint Operations*, II-2.

as possible while taking out as many bad guys as possible—was a mistake.”⁴⁰ The anomalies and paradoxes generated by approaching complex problems with reductionist logic provoke the emergence of Design’s different ways for making sense of the world. Figure 3 depicts just one of Design’s potential dissimilar logics below and follows the conceptual framework outlined in figure 1. Design is not one alternative logic, but an infinite combination of many new and undiscovered approaches to making sense of the world. One requires only an open mind, and the ability to critically think about how one thinks, and how one does not think.

Design System of Logic

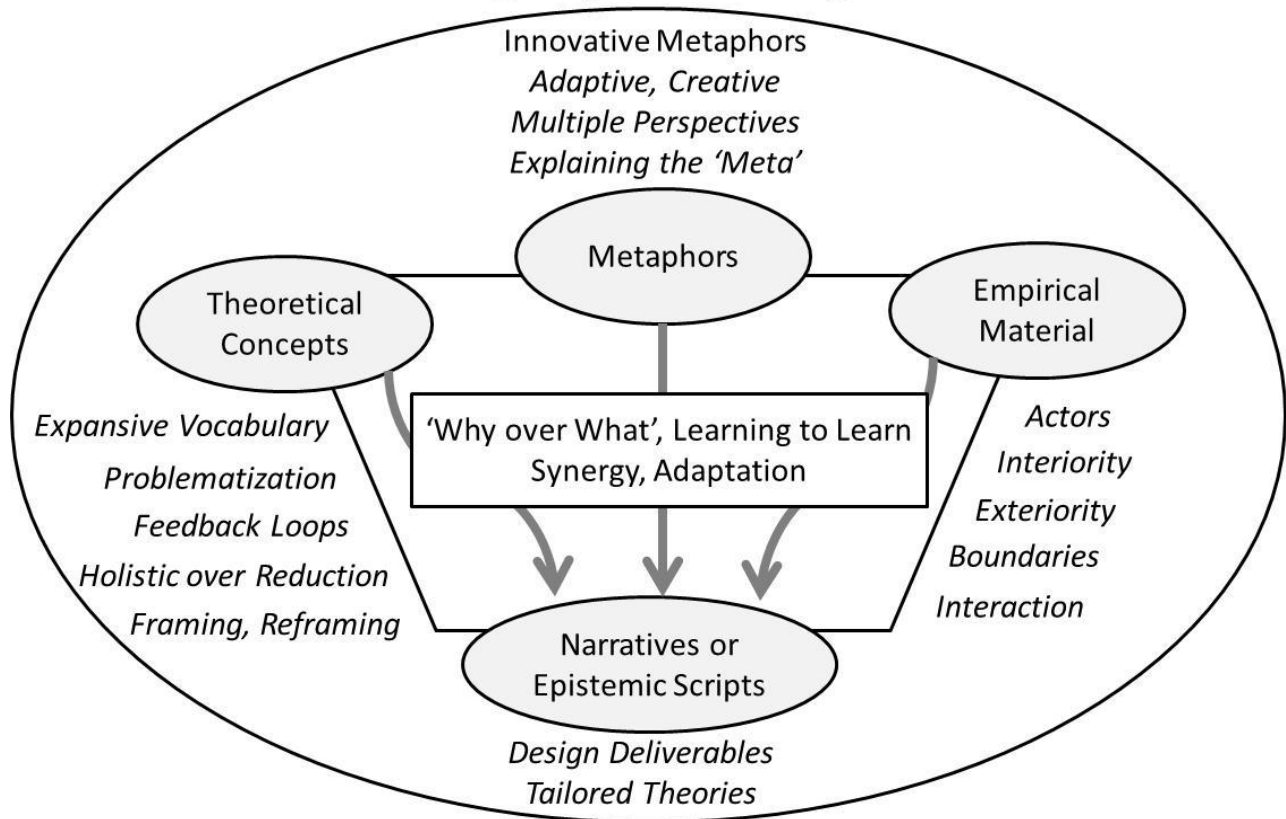


Figure 3: Depicting One Possible System of Logic for Design

Figure 3 demonstrates how Design applies different logic (or logics) when compared to detailed planning in figure 2. Each of the building blocks of metaphors, theoretical concepts, and empirical material interact within a different logic to produce unique narratives. These narratives serve as Design deliverables that explain the world in ways that potentially avoid existing abnormalities and friction that detailed planning results frequently generate.⁴¹ This hardly means

⁴⁰ Azeem Ibrahim, *Afghanistan’s Way forward Must Include the Taliban* (Los Angeles Times Opinion Online; 09 December 2009; <http://articles.latimes.com/2009/dec/09/opinion/la-oe-ibrahim9-2009dec09> last accessed February 2011).

⁴¹ Azeem Ibrahim, *Afghanistan’s Way forward Must Include the Taliban* (Los Angeles Times Opinion Online; 09 December 2009; <http://articles.latimes.com/2009/dec/09/opinion/la-oe-ibrahim9-2009dec09> last accessed February 2011) Ibrahim quotes General McChrystal’s opinion on how the American military had spent the last decade fighting in Afghanistan, “looking at the war in simplistic Manichaeian terms—save as many good guys as possible while taking out as many bad guys as possible—was a mistake.”

that a Design logic eliminates abnormality and friction- instead it likely generates entirely different ones for us to contemplate.

Design is open, perpetually adapting and innovating- therefore it does no justice to limit Design to what figure 3 depicts. Instead, figure 3 provides a snapshot of a limitless conceptual cloud of swirling and interacting logics where holistic understanding and persistent creativity generate new knowledge production. Understandably, traditional military logic does not react favorably to methodologies that resist *proceduralizing*, exhibit non-conformity, and deny repetition. This in part explains why the military currently struggles with implementing Design into language, doctrine, and practice. Unfortunately, recent military Design doctrine, terminology, and current practices attempt to ‘salami slice’ Design logic into the preferred traditional military methodology. Our Design doctrine does precisely this, and it makes complete sense that our military is frustrated with how to apply ‘doctrinal Design’ in practice, education, and discourse. Perhaps the military might consider reversing this process and assimilating detailed planning concepts into the overarching framework of Design logic. This is a potentially contentious statement, but once again this article attempts to break readers away from accepted perspectives that are quite difficult to abandon, even temporarily. A radical suggestion might appear revolting- and one must ask why such a statement is so unpalatable. Perhaps some of the reasons we find some ideas ‘heretical’ are because the ‘root metaphors’ within our institutions actively attack any ideas that threaten our core values, theories, and logic structure?

In order to accomplish such a bold revision, the military must think critically about how and why it prefers reductionist logic, and whether it can replace descriptive reductionism with holistic synergy.⁴² ‘Holistic synergy’ is a fancy phrase for understanding that a bicycle is more than the sum of its parts- and that description does not lead to explanation but usually further reductionism and greater description. However, when it comes to detailed planning logic, this article does not argue that the military should ‘throw the baby out with the bath water’ on the entire detailed planning way of making sense of the world. Instead, the military could take those relevant processes out of detailed planning’s ‘bath water’ of logic and incorporate them into Design. Instead of a bathtub, the baby enjoys adaptive and changing waterfall- clouds of dissimilar logic interacting and innovating to complex environments. Some conflict environments might call for traditional planning models, while others need something entirely unknown that the military must create through innovation and deep understanding of the chaoplextic system. Design provides a new foundation for a new framework to grow from.⁴³

In conclusion, the increasing complexity of the 21st century world requires the military to reflect upon whether the system of logic built upon theoretical concepts such as reductionism, mechanistic processes, and linear causality still makes sense of reality effectively. End states, centers of gravity, and traditional detailed planning procedures formed the intellectual cornerstones for military planning and execution in past eras. They may work in some situations, but do we need to force them in *every situation*? Although reductionist logic defeated the Nazis

⁴² Alvesson, Sandberg, 259. Alvesson and Sandberg ask “how can assumptions be challenged without upsetting dominant groups, which hold them so strongly that they ignore the critique or even prevent one’s study from being published?”

⁴³ Liang, Xiangsui, 13-14. “Some of the traditional models of war, as well as the logic and laws attached to it, will also be challenged. The outcome of the contest is not the collapse of the traditional mansion but rather one portion of the new construction site being in disorder.” Some elements of detailed planning logic are now no longer useful in the 21st century, while others should remain. The military ultimately determines which elements are still valid. This monograph suggests that doctrine, linear causality, reductionism, mechanistic procedures, and the overemphasis on western theories such as Clausewitz and Jomini require revision and editing.

and put Americans on the moon, does that logic continue to function in conflict environments such as Afghanistan, Iraq, Libya, and elsewhere today? Israeli Design theorist Shimon Naveh charges that military planners are “confined to the ‘shackles’ of inferiority determined by institutional paradigm, doctrine, and jargon...[they] are cognitively prevented, by the very convenience of institutional interiority...because the ‘shackles’ of ritual hold them in place.”⁴⁴ Are the biggest hurdles for influencing the world in the future the increasing complexity of the world, or simply the way we prefer to think about the world? The military needs to reflect upon how it thinks, and make critical decisions on what is still useful, and what is not.

Some of these recommendations fundamentally challenge military institutional tenets inherent within the detailed planning method of thinking. Some readers might conclude that Design remains a conceptual quagmire where “nothing gets solved and we get lost in philosophical debates with fancy words about nothing.” However, this article on rival systems of logic ends with the same meta-question from the beginning. If some systems of logic are better than others at recognizing and influencing the world, why would the U.S. Army stick with one that does not always deliver? Why not at least consider using different tools in the box instead of treating everything with a hammer? Investing national resources and lives more effectively in the future requires innovation, even at the expense of traditional tenets, institutionalism, and other self-interests. Our institutionalism not only the military’s greatest strength, but it might also reflect our greatest weakness. Design does not replace detailed planning, but it does offer different approaches that might help the military make better sense of the world. Perhaps just some aspects of Design theory might evoke the right solution to an organization that prefers to approach everything within self-protective system of logic that categorically seeks to reject other perspectives.

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⁴⁴ Shimon Naveh, Jim Schneider, Timothy Challans, *The Structure of Operational Revolution; A Prolegomena* (Booz, Allen, Hamilton, 2009) 72.