

FM 3-0: Operations on the Cusp of Postpositivism

Christopher R. Paparone

Complex operations require complex mental models. Our traditional model for developing and disseminating professional military knowledge has been tied to a kind of pseudoscience and as such doctrine has historically been akin to finding independent variables (e.g., variations of offensive and defensive activities), that when scripted correctly, are believed to create military effectiveness (with the dependent variables include variations of enemy outcomes, such as defeated or destroyed). The eighteenth century tradition of the Western positivist world view demands a single, best solution – derived “objectively” from the best analysis and best course of action that together drive effects in a focused, Jominian-style pathway. We are on the cusp of shifting paradigms because a doctrine based in positivist philosophy is not working well for us. The text of the new Army FM 3-0, *Operations*, is an example of how the Army-at-war is transitioning from a positivist to a postpositivist philosophy.

Positivism with Respect to Postpositivism

Positivism is a belief system first described by French eighteenth century philosopher, Auguste Comte. Comte argued that there is objective truth only to be found through strict physical scientific method (i.e. isolation and manipulation of variables, hypothesis testing, objective experimentation, replication, and so on). Positivism served the foundation of traditional, post-WW II, US doctrine and tends to neglect the uniqueness and dynamic qualities of complex operations. In that regard, positivist principled approaches to doctrine have failed to account for the *emergent* properties of complexity where the production of knowledge is both ephemeral (i.e. something being learned now will not apply later) and difficult to describe (i.e. a kind of tacit understanding is achieved by those engaged but cannot be readily transmitted to others). Positivist doctrine focuses on reductionism, empiricism, linearity, mathematical logic, and predictable cause-and-effect relationships.

Postpositivism is nested in the worldview that humans always are biased in their “objective” perceptions of reality; hence, this orientation permits going beyond an empirical sense of reality (i.e. we can never be positive about the way the world of military operations works). Postpositivism suggest that we can only approach the truth of reality, but can never really explain it fully; hence, to appreciate the complexity of life we humans must learn to value *multiple perspectives*. There can be no one best way of examining the complicated truth; hence, *interdisciplinary* interpretations are necessary to study reality. Rather than pursuing a quest for an objective, physical sense of reality, postpositivism demands we have to make sense of it all (and accept that this sensemaking

is *subject* to change). Postpositivism does not reject positivism outright, but subordinates the view.

How Can We “See” the Cusp?

As we stand at the historic juncture between positivist- and emergent postpositivist-philosophies, we need a mental model that will help us to better perceive this transition. Two continua can help us rate where on the scale between positivism and postpositivism our doctrine falls: (1) the endurance continuum (how stable/unstable and unchanging/changing our doctrine is); and, (2) the exclusivity continuum (whether the doctrine relies on one core concept or several, often competing ones). The proposed model (Figure 1) suggests that all types of doctrine must be considered simultaneously to better portray the patterns associated with doctrinal approaches to complex operations.

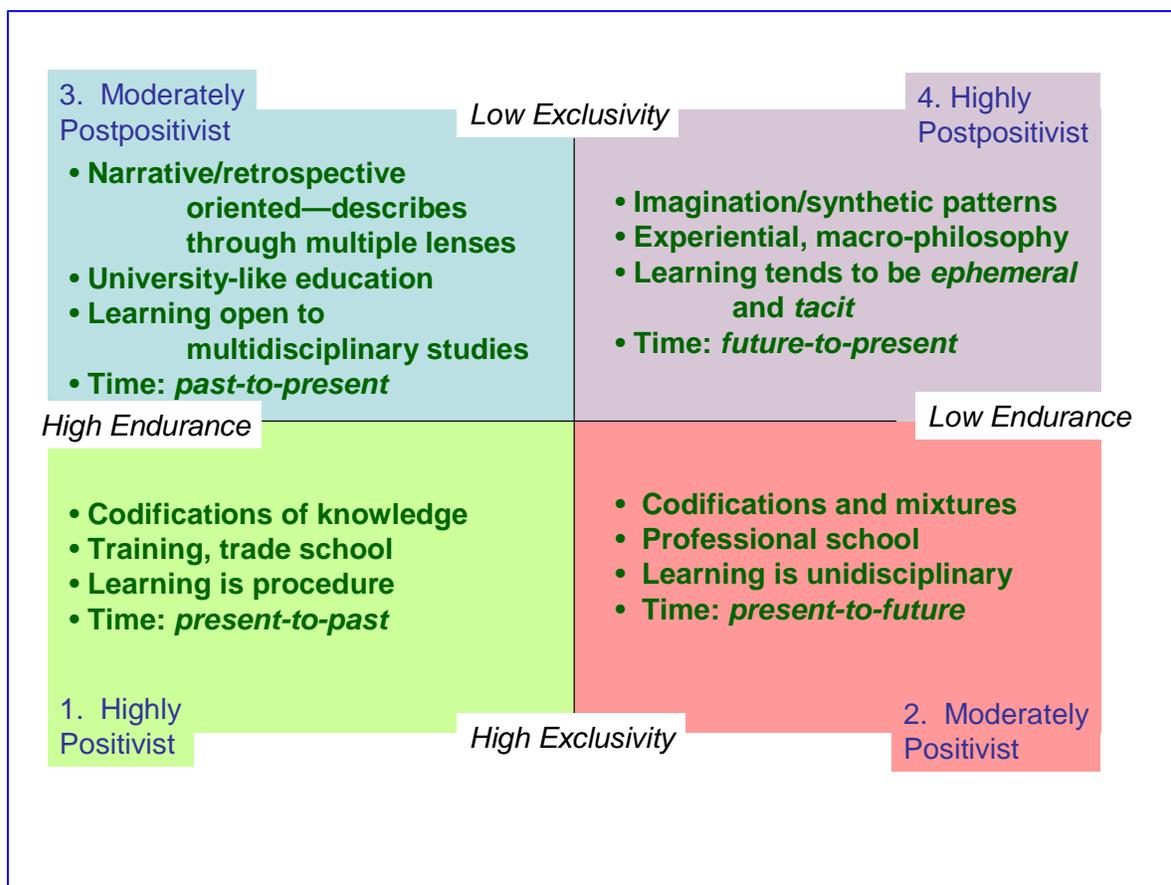


Figure 1. A COMPLEX VIEW OF DOCTRINE. There are four types of doctrinal approaches and they have different relationship to practice, schooling, knowledge and time orientations. An example of *highly positivist* doctrine would be like a UH60 pilot’s preflight checklist. Moderately positivist doctrine would involve more conceptualization and mixing of “known knowns” and “knowable unknowns,” such as the MDMP generated COA and CCIR (both of which may not be relevant after “first contact”). Moderately postpositivist doctrine would involve incorporating

multiple views of the humanities, fine arts, anthropology, sociology, psychology, and so on, to contemplate operations in complex environments. Highly postpositivist doctrine (or more accurately “anti-doctrine”) would signify ephemeral, highly localized, uniquely applied knowledge to each situation, and it is always in flux—not subject to codification.

Let us now examine different aspects of this model separately – temporarily suspending the interconnectedness of the whole. The following sections will refer to this diagram, one portion at a time, beginning with the Type 1, Highly Positivist approach.

Type 1 Doctrine, Highly Positivist. Some things during even the most complex operations are predictable and certain and can be addressed through routinized or highly programmed operations (i.e. the “known knowns”). Best practices can be incrementally refined and developed over time; nevertheless, doctrinal solutions remain relatively stable, with small-step, evolutionary improvements. Doctrinal remedies (like independent variables) for a standing list of problems (like dependent variables) can be expressed in predetermined terms of tasks and standards. For example, doctrine expressing how a Soldier, Sailor, Airman, Marine, or Coast Guardsman (military practitioner) must qualify on his or her assigned weapon can be quite effective.

Effectiveness of Type 1 doctrine is assessed as much more objective than subjective, using mathematical probabilities and measures of effectiveness. The conditions for implementing this doctrine would include compliant, regimented, and disciplined military practitioners supervised by a training cadre of noncommissioned officers. Rule-based, sequential, well-oiled, machine-like command and control works well in executing this type of doctrine. The dominant organizational values that support this type of doctrine are associated with stability and control with the chain of command focused on enforcing internal standards, clearly defined standing operating procedures, checklists, and regulations. The time orientation of the doctrine is focused on *present-to-past* as well-knowing military practitioners try what has worked before and the application is linked tightly to watches, calendars, and schedules. For example, a view of the 1976 edition of Army FM 100-5 (the precursor to 3-0) could be categorized as a positivist doctrine focused on simplicity, linearity, and predictability (see Figure 2). A “trade school” (basic and advanced individual training) approach is suitable for indoctrination of Soldiers in this type.

Firepower. Modern tanks are significantly more lethal than the armored vehicles which fought in World War II. Trying to hit another stationary tank at a range of 1500 meters, the US Army medium

tank of World War II could fire 13 rounds, and would still have only a 50-50 chance of hitting. The standard US medium tank of the mid-'70s commanded the same hit probability with a single shot.

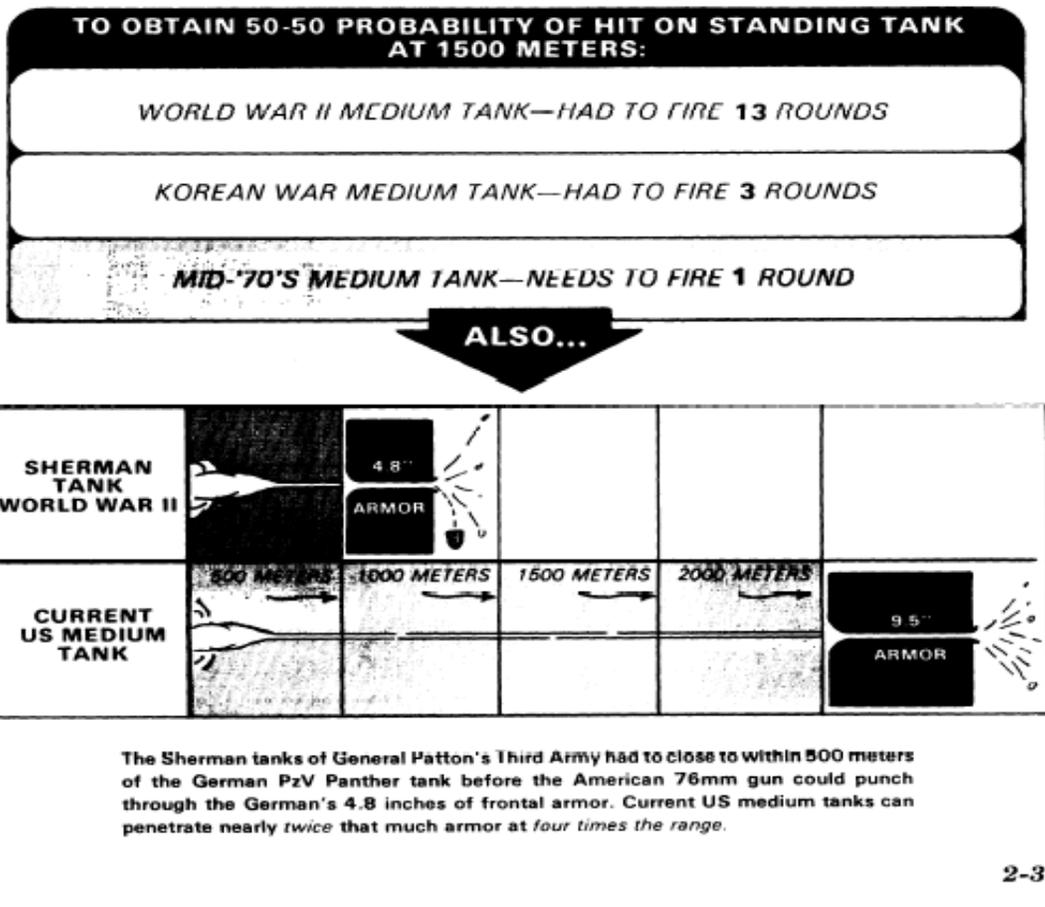


Figure 2. A 1976 US ARMY HIGHLY POSITIVIST VIEW OF DOCTRINE. A lot of the text in the 1976 Army FM 100-5, Operations, was based in the “science” of estimating probability of kills and how the advancements in high technology has improved them.

Type 2 Doctrine, Moderately Positivist. Multiple things during complex operations can be analyzed (reduced in size and scope), processed, addressed with a blending of known military activities, and by forecasting acceptable risk. For example, rational decision-making processes or templated campaign planning might work well depending on factor analysis of such things as mission, enemy, time and troops available, and terrain and weather. Staffs can develop best practices in estimating processes that help do this well. Doctrine is process oriented and requires well-controlled, hard-science-like research methods to generate creative hypotheses, identify critical factors (variables) and courses of action as well as plans for contingencies if things do not go as planned. Type 2 doctrine prescribes process rather than preset solutions (found in Type 1) and requires military staff practitioners with specialized and practiced analytical skills where hierarchical (commander-centric) decision making works well.

Indeed, in Type 2, the commander *is* the centerpiece of this doctrine because s/he has been given the legitimate authority and is held accountable and responsible for providing intentions, making decisions and approving contingencies. Subordinate commanders execute these and ensure each level of organization imbeds its part in the whole scheme. As such, there can be block-and-wire diagrams and auditable trail of responsibilities, like that published in the Chairman’s *Universal Joint Task List*, which are believed to aggregate together to form the macro-level mission performance (Figure 3). Here doctrine attempts to account for all probable contingencies in planning with the same task structure that gives the impression of engineered precision. The dominant values that drive this type of doctrine are, like with Type 1, associated primarily with exclusivity; however, practitioners are much more willing to speculate on what can possibly happen outside the conventional organization of “troop-to-task” and perhaps into the interagency realm. The prevalent time orientation is *present-to-future*, that is, the doctrinaire should sense a more unstable, low endurance knowledge. Type 2 doctrine moderately positivist approaches call for planned activities are driven by forecasted conditions. A “professional school” setting (like the traditional command and general staff college) is appropriate for training and educating Soldiers for this type.

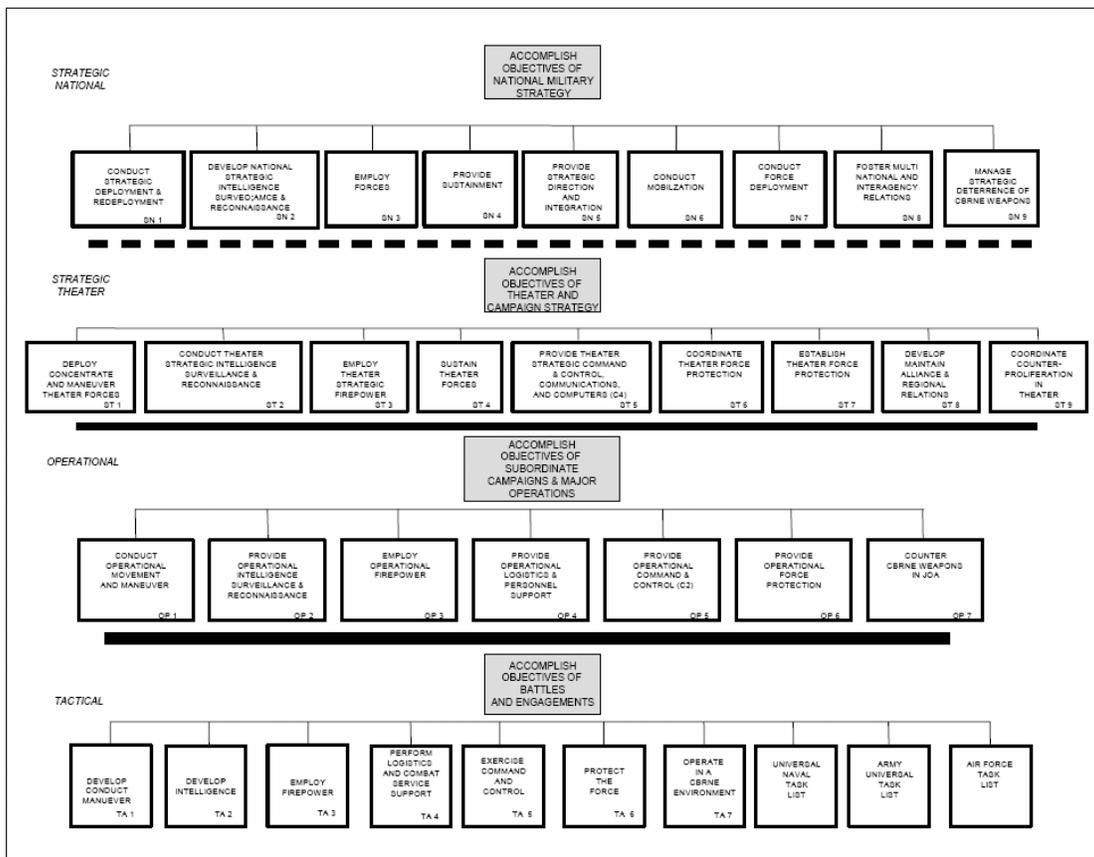


Figure 3. “War as Hierarchy.” This is a diagram borrowed from page B-A-3 of the *Universal Joint Task List*, Chairman of the Joint Chiefs of Staff Manual 3500.04, dated 1 July 2002. There are layers of sub-tasks to these tasks later in the manual.

It represents a moderately positivistic, “building block” approach to explaining of operations.

Type 3 Doctrine, Moderately Postpositivist. Some things in complex operations appear irrational to doctrinaires, sparked by human emotions, aesthetic appeal, interorganizational squabbles, and subjective beliefs. In light of these conditions, events cannot be very well predicted or planned, but can better be studied retrospectively and farmed for “lessons.” In that regard, Type 3 doctrine can best be described as the use of competing interpretations and for developing historic analogies. Qualities can be described in Type 3 as enduring aspects of the craftwork of conducting complex operations. For example, one could describe successful counterinsurgency operations as “a statue in that piece of marble somewhere -- I just have to chip away until I can ‘see’ the patterns emerge; and what I make of this may not appeal to all.” This is not to say that types 1 and 2 doctrines are ignored.

On the contrary, competing images in moderately positivist approaches require a lot of improvisation -- a *bricolage* approach (i.e. creating new somethings from new ways of configuring old somethings). Using Type 3 doctrine is analogous to performing in an advanced painting class, which is when the practitioner is armed with some proven techniques and makes something work with tools, materials, and concepts in hand. The “art critics” (in the civil-military context -- the “policymakers”) may like the result and may not, or assess performance somewhere in between. Each “art student” (from various agencies and organizations involved in complex operations) can “make” something different and yet still “sell” their work. The effectiveness of Type 3 doctrine is in the eyes of many beholders, to include the good guys, the bad guys, the neutrals, and so on (the old adage “where you stand depends on where you sit” comes to mind).

Like Type 1, Type 3 doctrinal meanings are inherently more enduring than in types 2 and 3. For Type 3 doctrine, however, “principles of war” may be better seen as patterned tradeoffs than a list. Instead of categorically describing doctrine (as positivistic approaches would call for), more postpositivist methods would call for viewing the world through overlapping continua (Figure 4). As a result, this type of doctrine requires improvisation, mentally agility, and collaborative military practitioners to act and learn (and perhaps purposefully forget) in tandem. Military practitioners attempt to communicate with rich description and shared sensemaking associated with emergent mental models that might work better than the ones available or published in types 1 and 2. Rather than taking cues from so-called “lessons learned” associated with more exclusive meanings found in Types 1 and 2 doctrines, meaningfulness is an ongoing and fluid process of mutual adjustment that takes the form of “collaborative inquiry” as one would in a graduate seminar at a university with a diversity of students and faculty participating. The prevailing time orientation is *past-to-present*, in that history plays an important part in framing complex situations, and the realization that different organizations and social cultures bring different interpretations the context at hand.

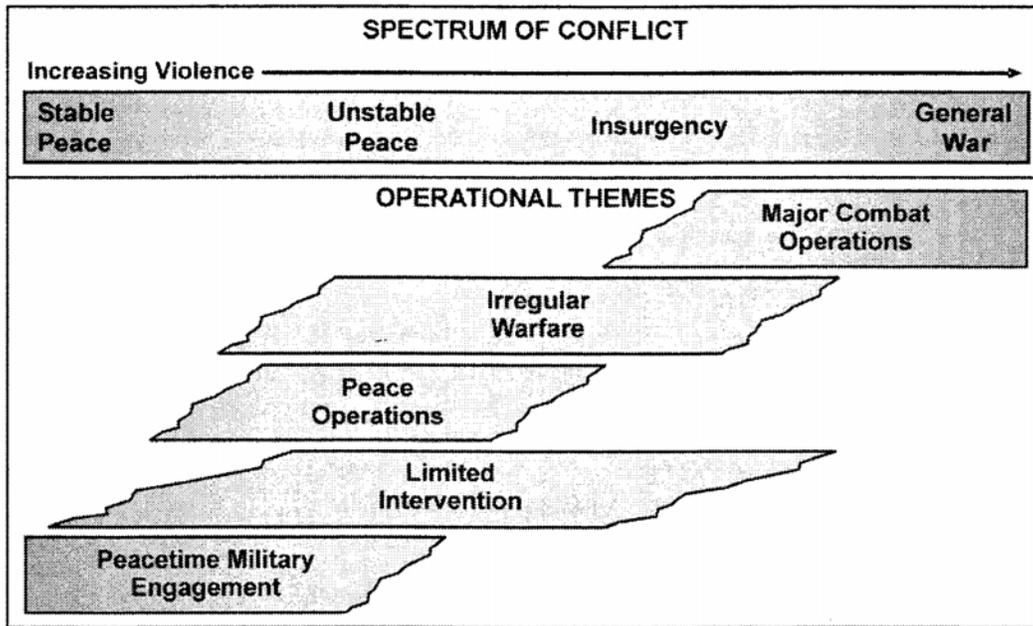


Figure 4. USE OF CONTINUA RATHER THAN CATEGORIES. A more postpositivist approach would call for examining the world using continua rather than categories (e.g., “independent/dependent variables”). This diagram is from page 2-5 of the “Post-DRAG” 2008 version of FM 3-0.

Type 4, Highly Postpositivist. At the far reaches of Type 4 doctrine, the "context" is understood only by the few who are “in it” and because no one outside the context knows what “right” looks like until “it” is being experienced. The dominant conditions that create the need for competing images doctrine are military practitioners that respect alternative interpretations, value resilience, flexibility, experiential learning, and local initiative in the face of highly unstable operational situations. Meaning in this doctrine type (perhaps this should be better named the “anti-doctrine”) is more contextual and fleeting because high complexity prohibits the ability to even imagine what is happening or what will happen next. In this type, how we make sense is paradoxically "non-routine" where learning too ephemeral in a real-time dynamic. Doctrinaires who have prepared doctrine in Types 1, 2, and 3 modes now contemplate how to describe ephemeral knowledge that may not be relevant in a minute, hour, week, or month later or three blocks over. Marine General Chuck Krulak used the metaphor of the “three-block war” to attempt to describe a more complex view of operations, but even his metaphor only applies up to Type 3 doctrine. Ideally, military practitioners who appreciate complexity are well aware that what they do or do not do now may so affect the operation dramatically in the next few minutes and realize there is neither a way to isolate those variables nor to predict the outcome of their interaction.

Operational participants (the good, the bad, the neutral, and so on) at many levels see things work and not work in various and always changing combinations and among multiple time orientations. From the Type 4 perspective, interactive feedback loops may sometimes come too fast to react and sometimes too slow to be useful, so perceptions of

failure now may be ultimate successful later. Or, what we see now as success may eventually turn out to be failure (our sense of mission accomplishment in 2003 with retrospect to the emergent conditions in Iraq of today). Military practitioners cannot "invent doctrine" along the way as with Type 3; therefore, must appreciate that professional knowledge will never be stable and may need to be different at different times and in different units. Expertise is short-lived and is neither linked to positional authority nor rank. Contrary to the prevailing folklore of the positivist military, hope becomes a method because positive and negative effects appear serendipitously rather than with probable cause. The time orientation or Type 4 doctrine is characterized by *future-to-present* (i.e. with the temporal quality of, at best, accepting the ambiguity of exploration, or at worst, feeling hopeless in the constant surprises of the unknowable future). The emerging concept of "Commander's Appreciation" may lead to a highly postpositivist view of Army operations in the future as indicated with the publication of TRADOC PAM 525-5-500 (Figure 5).

d. Complex Adaptive Systems. The speed with which even irregular forces learn and adapt adds a temporal dimension to complexity. The ability to learn and adapt while fighting marks future adversaries and the societies from which they come as *complex adaptive systems*. Such systems "exhibit coherence under change, via conditional action and anticipation, and they do so without central direction."⁹ Irregular forces, because they are less regimented and hierarchical, can change not only their fighting techniques, but also their organization and the very objectives for which they are fighting.

(3) Every ill-structured problem is essentially unique and novel. Historical analogies may provide useful insights—particularly on individual aspects of a larger problem—but the differences between even similar situations are profound and significant. The political goals at stake, stakeholders involved, cultural milieu, histories, and other dynamics will all be novel and unique to a particular situation.

Figure 5. EVIDENCE OF AN EMERGENT HIGHLY POSTPOSITIVIST VIEW. These are two extracts from the 28 January 2008 TRADOC PAM 525-5-500, *Commander's Appreciation and Campaign Design* (p. 7 and p. 10, respectively). Note the shift toward the highly postpositivist view of operations.

The impending release of FM 3-0, *Operations*, is based roughly in Types 1 and 2 (with a growing incremental increase of Type 3), is still too tightly linked to positivism. Figure 6 demonstrates the pattern of positivism-postpositivism presently documented in the next FM 3-0.

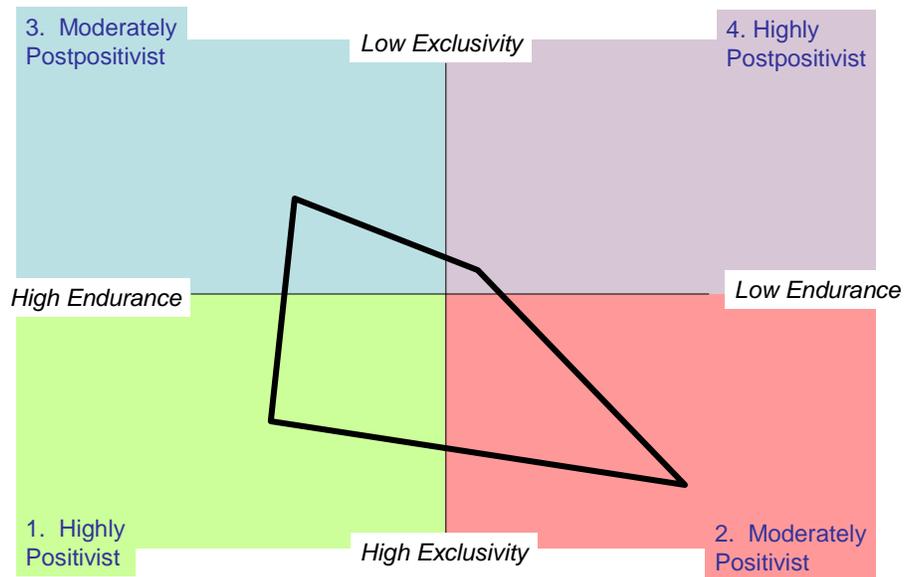


Figure 6. A SNAPSHOT PATTERN OF THE NEW FM 3-0. This is the author's subjective rating of the pattern of positivist and postpositivist approaches found in the Army's new *Operations* field manual.

The proposed way ahead is to think of these simultaneous versions of doctrine and develop the kinds of military practitioners who are mindful of a more patterned view complex operations. The effective military practitioner attempts to diagnose the situation s/he is in and reflect on which pattern of doctrine seems appropriate. Perhaps uncomfortable to today's military culture, paradox, irony, and surprise are aspects of complex operations that will require a pronounced shift in the way we construct reality and communicate that reality with each other and those outside the profession. Building on an impending postpositivist movement in the military profession, this essay has proposed a typology of doctrine that will aid both doctrinaires and practitioners enhance the professional military construction of knowledge.

Christopher R. Paparone is an associate professor in the Army Command and General Staff College's Department of Logistics and Resource Operations at the Fort Lee, Virginia satellite campus. A retired Army colonel, he has a Ph.D. in Public Administration from Pennsylvania State University.

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