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MAJ Stephanie Crawford enlisted in September 2000 and attended basic combat training at Fort Jackson, South Carolina. She attended advanced individual training at Aberdeen Proving Ground, Maryland, for MOS 52D, Power Generation Equipment Repairer, graduating from the program in March 2001. Her first duty station was at Camp Zama, Japan, where she served her entire initial enlistment, first with the 17th Area Support Group, and later with the 35th Supply and Service Battalion. MAJ Crawford earned a bachelor of arts degree in English literature and creative writing from the University of Arizona in May 2006, and commissioned in September 2006 through the Officer Candidate School at Fort Benning, Georgia.

MAJ Crawford attended Basic Officer Leadership Course (BOLC) Phase II at Fort Benning, Georgia, and the Adjutant General (AG) BOLC at Fort Jackson, South Carolina, graduating on the Commandant's List in February 2007. She was assigned to Fort Lee, Virginia, as the S1 for the 530th Combat Sustainment Support Battalion. MAJ Crawford graduated on the Commandant's List from the AG Captains Career Course in May 2010. She was then assigned to Fort Rucker, Alabama, as the S1 for the 164th Theater Airfield Operations Group. In May 2012, MAJ Crawford was assigned to Kent State University as an Assistant Professor of Military Science. She earned a master of arts degree in English from Youngstown State University in May 2015, before reporting to the Command and General Staff Officers Course at Fort Leavenworth in August 2016. Upon her graduation, MAJ Crawford will be assigned to Fort Riley, Kansas, as the S1 for the 1st Armored Brigade Combat Team, 1st Infantry Division.

MAJ Crawford deployed in support of Operation Iraqi Freedom 07-09, from August 2007 to October 2008. She deployed again in support of Operation New Dawn, from October 2010 to April 2011. Her awards and decorations include the Bronze Star Medal, the Meritorious Service Medal, four Army Commendation Medals, two Army Achievement Medals, the Meritorious Unit Commendation, the Army Good Conduct Medal, the National Defense Service Medal, the Iraq Campaign Medal, the Global War on Terrorism Expeditionary and Service Medals, the Army Service Ribbon, two Overseas Service Ribbons, and the German Armed Forces Badge for Military Proficiency (gold award).

MAJ Crawford has been married for fifteen years to James Crawford of Clearwater, Florida. They have a daughter, Athena, and a son, Rory.

Abstract

Effective stewardship of the profession is an essential aspect of the Army Ethic outlined in Army Doctrine Reference Publication (ADRP) 1, *The Army Profession.* Stewarding the profession means holding ourselves and others accountable for their decisions, their conduct, and the performance of their duty. The primary mechanism for this accountability is the Evaluation Reporting System (ERS), which calls for periodic review of every leader's duty performance against established standards of conduct contained in the Army leadership requirements model as outlined in ADRP 6-22, *Army Leadership.* According to the ERS, senior leaders evaluate the duty performance of the rated individual by observing behavior and manner of duty performance; classifying that behavior as a manifestation of some leadership attribute or competency within the Army leadership requirements model; and ultimately recording the behavior and any associated outcomes on the individual's evaluation report. However, the conceptual nature of the Army's leadership requirements model, coupled with the cognitive processes involved in the classification of observations and experiences, make the standardization of the ERS particularly difficult. Unconscious semantic categories could potentially introduce a linguistic brand of cognitive bias into the ERS. This bias could potentially undermine the equitability of the ERS during the initial phases of integrating women into previously closed occupational fields.

FRAMING BIAS REVISITED FROM A LINGUISTIC PERSPECTIVE:
POTENTIAL RAMIFICATIONS FOR FORCE INTEGRATION

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Introduction

On 4 December 2015, Army Chief of Staff General Mark A. Milley announced the full integration of women into every military occupational speciality (MOS).[1] The purpose of this, Milley wrote, was to improve the overall force readiness by permitting the "best qualified" individuals to fill each billet, "regardless of gender."[2] Perhaps to mollify opponents of the decision, Milley assured readers that a "detailed and deliberate implementation plan" would preserve the rigorous standards that Soldiers looking to serve in combat MOSs must meet.[3] This is unsurprising, given the vast quantity of Army doctrine; clearly, the Army strives to publish its expectations and enforce standards universally. However, for the Army to successfully and fairly integrate women into all fields, a reassessment of physical fitness standards alone is insufficient. Leaders at all levels must also be aware of the potential for cognitive bias to compromise their evaluation of Soldiers in newly integrated fields.

Army Doctrine Reference Publication (ADRP) 1, *The Army Profession*, states that the Army Ethic underlies the "shared professional identity" of Army service members and Civilians.[4] ADRP 1 clarifies the purpose of the Army Ethic as elucidating "the nature of honorable service in accomplishment of the mission and performance of duty."[5] One of the associated responsibilities of Army Soldiers and Civilians is stewardship of our profession: "We hold others and ourselves accountable to achieve the standard, striving for excellence."[6] The primary mecha-

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[1] Milley, Mark A., "Full Integration of Women in the Army," *Army.mil*, 4 December 2015, http://www.army.mil/e2/rv5_downloads/women/full_integration_of_women_in_the_army.pdf.
[2] Ibid.
[3] Ibid.
[4] Department of the Army, *ADRP 1, The Army Profession* (Washington, DC: Government Printing Office, 14 June 2015), 2-1.
[5] Ibid.
[6] Ibid., 2-8.

nism by which we hold Army leaders accountable for their conduct and their duty performance is

the evaluation reporting system (ERS). In this way, leader evaluations are directly linked to the

Army Ethic.

The Army's ERS outlined in Army Regulation (AR) 623-3 looks to determine the "best

qualified" individuals for assignment, training, education, and promotion, according to the at-

tributes and competencies of the Army Leadership Requirements Model.[7] These characteristics

tend to be abstract and intangible, yet rating chain members are charged to record and classify

them in a manner that is objective and empirical.[8] The ERS determines a Soldier's career pro-

gression; it is therefore of utmost importance that evaluations are rendered in a manner that is

equitable and, to the fullest possible extent, standardized. To this end, the Army leadership prin-

ciples contained in Army Doctrinal Reference Publication (ADRP) 6-22 which form the basis of

the ERS apply universally to all members of the force.[9] Yet the conceptual nature of the Army's

leadership requirements model, coupled with the cognitive processes involved in the classifica-

tion of observations and experiences, make such standardization particularly difficult.

Cognitive Bias

Army leaders are well aware of cognitive biases and their potential to affect our judgment

and compromise our objectivity. The Harvard School of Business article, "The Hidden Traps of

Decision Making," is required reading within Command and General Staff College leadership

and ethics curriculum. This article provides an overview of various cognitive biases, how to

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[7] Department of the Army, *AR 623-3, Evaluation Reporting System* (Washington, DC: Government Printing Office, 4 November 2015), 3.
[8] Ibid., 4.
[9] Department of the Army, *ADRP 6-22, Army Leadership* (Washington, DC: Government Printing Office, 1 August 2012), 1-6.

identify them, and how to mitigate them. Of particular relevance to this paper is the framing trap, which encompasses both the vantage point from which we regard a problem and its associated context. The authors provided examples wherein simple changes in wording yielded strikingly different choices, even though the outcomes were unaffected. Presented with paired alternatives, respondents consistently chose courses of action that appeared to maximize gains and minimize losses. The researchers determined that "people are risk averse when a problem is posed in terms of gains…but risk seeking when a problem is posed in terms of avoiding losses"—simple changes in the framing of the problem led respondents to prefer opposing outcomes.[10]

Framing bias is particularly troublesome, since it often introduces or accompanies other forms of bias. Because of typical consumer preference for the familiar, awareness of frames that establish or reference the status quo is particularly relevant to this discussion.[11] The introduction of women into previously closed MOSs is a marked departure from the status quo. As rating chain officials prepare to evaluate the traits and performance of new female leaders in these occupational fields, they must also be aware of frames that could potentially lead them towards confirming evidence.[12] However, they might not be aware of the extant linguistic and semantic frames that could create cognitive bias, as well.

Cognitive Categories and Classification Processes

Jean Aitchison, a professor of language and communication at Oxford University, describes the process by which humans sort, connect, and make meaning of input from our envi-

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[10] John S. Hammond, Ralph L. Keeney, and Howard Raiffa, "The Hidden Traps in Decision Making," *Harvard Business Review* 84, no. 1 (January 2006): 124.
[11] Ibid.
[12] Ibid.

ronment. As we experience stimuli, our minds formulate general categories by which to classify and order our world. The heading or label that we assign to each category is broad enough to permit classification of things that do not fit precisely. As input aggregates, a prototype or ideal representative of each category emerges; we gauge external stimuli against this prototype to determine the degree of similarity. If sufficient overlap exists between reference and referent, that item qualifies as a match for category inclusion.[13] Category boundaries are neither fixed nor defined: Consider the variance in build, size, color, fur texture, and general appearance of animals that qualify for classification into the category *dog.* Each person likely has a unique mental prototype for the category *dog,* and most canines in the real world would not be a very close approximation to their individual ideal, yet the match is consistently made. Even very specific categories that are beyond cultural or experiential influence—the color *blue*, for example, which is determined by wavelengths of reflected light—permit considerable latitude in classification. The formation of these mental categories enable us to readily interpret and react to input from our environment.

In 1975, Eleanor Rosch, professor of psychology at the University of California, Berkeley, set out to determine the exact nature of mental referents, or how we cognitively represent a given semantic category. She called the minimum qualifying characteristics necessary for classification into a particular category "critical features."[14] She began by examining categories based solely upon perception of physical qualities, such as color. In these instances, Rosch argued, mental classification was accomplished purely by comparison of the external stimulus to the in-

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[13] Jean Aitchison, *Words in the Mind: An Introduction to the Mental Lexicon,* 2nd ed. (Oxford: Blackwell Publishers, 1994), 41.
[14] Eleanor Rosch, "Cognitive Representations of Semantic Categories," *Journal of Experimental Psychology: General* 104, no. 3 (September 1975), 193.

ternal prototype representing the category ideal.[15] The degree of similarity between the external stimulus and the prototype determined the extent of category membership.[16] In the aforementioned example of the category *blue*, cobalt blue might be considered a better representation of the "true" color prototype than turquoise blue.[17]

Rosch next aimed to determine whether a similar classification process existed for those semantic categories that were broader, more abstract, and subject to cultural influence. Rosch queried test participants to determine the extent of agreement on how well a series of samples represented the prototypes of the categories. Rosch found that participants consistently agreed upon sample nouns which were "very good examples of the category."[18] For example, participants agreed that peas, carrots, and green beans were better representatives of the category *vegetables* than cabbage, radishes, or parsnips.[19] The physical attributes of samples did not consistently predict their ranking within a category. Peas, green beans, and string beans are all similar in appearance and were closely grouped within the top five rankings of the category *vegetables*; yet parsnips fell a full 26 rankings below carrots—though the two root vegetables are closely related.[20]

Rosch addressed this phenomenon in a 1981 article she co-authored with Carolyn Mervis, a professor of psychology at the University of Louisville. Rosch and Mervis postulated that the number of critical features that a sample shared with established members of a category—as opposed to the number of critical features that a sample shared with members of a *different* catego-

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[15] Ibid.
[16] Ibid.
[17] Ibid., 198.
[18] Ibid.
[19] Ibid., 231.
[20] Ibid., 231.

ry—determined classification ranking.[21] This would account for why participants in Rosch's 1975 study found chess to be a poor example of the category *sports*, since it shares more critical features with other members of the secondary category *games*.[22] Samples that can readily be classified into other categories are likely to be regarded as dissimilar from the ideal.

If this conclusion is valid, then by extension, the prototypical ideal for the category *Soldier* is one without any civilian equivalent: infantryman or tanker, for example. This ideal is exclusive to occupational fields that were previously closed to women. Those serving in occupations that have traditionally been open to women—logisticians, aviators, and nurses, to name a few— would be considered poorer representatives of the category *Soldier*, since these careers appear in both military and civilian contexts. The prototypical Soldier is therefore male.

To render fair evaluations of women initially entering the previously closed combat arms branches, rating chain officials would have to overcome two aspects of ingrained semantic categories. First, the established prototype of *infantryman* is exclusively male; the female leader must inevitably be found atypical of the category, at least initially, and so judged a poorer representation of it. Second, the female leader could conceivably seem better suited to a different category—administration or logistics, for example—because of shared critical features with women long established in those fields.

Evidence Beyond the Laboratory

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[21] Eleanor Rosch and Carolyn Mervis, "Categorization of Natural Objects," *Annual Review of Psychology* 32, no. 1 (1981), 92.
[22] Eleanor Rosch, "Cognitive Representations of Semantic Categories," *Journal of Experimental Psychology: General* 104, no. 3 (September 1975), 198.

Rosch's contemporaries found real-world applications for her research into cognitive classification processes, as well. Daniel Kahneman, Nobel laureate and professor of psychology at Princeton University, and Amos Tversky, psychologist at the Hebrew University of Jerusalem, Israel, found that people's evaluations of others tended to be based upon intuition and mental category classifications. They observed that study participants would disregard known information and select outcomes that best represented a particular semantic category based entirely upon a set of salient qualities (akin to Rosch's critical features). For example, test subjects were instructed to guess a random student's field of study based upon the information presented. Test subjects next reviewed numerical data indicating that the most popular major was business administration, followed by humanities, physical and life sciences, social science, computer science, and library science. Test subjects then received a profile of a student described as intelligent yet not very creative, detail-oriented, systematic, and introverted, who is a fan of science fiction—qualities irrelevant to a student's choice of academic major. An overwhelming number of subjects predicted the student's course of study to be computer science, though statistical probability would suggest that the student was more likely a business administration major (or indeed, nearly any other major, since the fewest students were enrolled in computer science and library science).[23]

Kahneman and Tversky concluded that people tend to make predictions "by selecting the outcome that is most representative of the input."[24] Evaluators' expectations, then, can directly determine their observations and, subsequently, their rating of a leader. This bears serious implications for evaluation of female leaders' performance in combat arms MOSs. The first stated

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[23] Daniel Kahneman and Amos Tversky, "On the Psychology of Prediction," *Psychological Review* 80, no. 4 (July 1973), 239.
[24] Ibid., 249.

function of the ERS, according to AR 623-3, is to render "thoughtful and fair appraisals of Soldiers' abilities, based on observed performance and potential."[25] Rating chain officials therefore must make predictions about how well a leader would perform in the next higher grade, and recommend successive assignments that would best serve the rated leader's developmental needs. If their predictions are subject to such cognitive bias as Kahneman and Tversky suggest, then the probability of a female leader in a recently integrated MOS receiving a fair evaluation is potentially poor.

Yet even when category definitions are relatively clear, perception and expectation can create individual bias that favors category membership independent of the salient attributes required for inclusion in that category. In 2014, Olav Sorenson of the Yale University School of Management and independent scholar Inna Galperin conducted a study to identify trends in Canadian consumer preferences for chicken labeled as "organic." For chicken to be marketed as organic, it must meet three specific conditions: raised exclusively on organic feed, free of animal by-products, and without antibiotics.[26] Of 571 study participants, nearly a quarter were unable to name even one of these three requisite characteristics; no one successfully named all of them.[27] Most people were unable to differentiate organic from conventional chicken, naming characteristics that were required by law of all poultry (raised cage-free and without the use of growth hormones).[28] Further, those consumers who indicated a preference for organic chicken were likely

[25] Department of the Army, *AR 623-3, Evaluation Reporting System* (Washington, DC: Government Printing Office, 4 November 2015), 4.
[26] Inna Galperin and Olav Sorensen, "Valuation, Categories, and Attributes," *PLoS ONE* 9.8 (2014), 6.
[27] Ibid.
[28] Ibid.

to ascribe it a higher value by assigning additional attributes, such as "natural," "chemical-free," and "tastes better."[29]

The human tendency to prefer the status quo, coupled with this potential to assign higher value to preferred categories, could potentially result in unconscious preferential evaluation of male leaders over female leaders in newly integrated occupational fields—at least during the initial waves of completed evaluation reports. Given Kahneman and Tversky's findings that expectations not only color our observations but pre-determine them outright, cognizance of this potential is vital to maintaining equitability in the Army's ERS.

Semantic Frames

Charles Fillmore, a professor of linguistics at University of California, Berkeley, was one of Rosch's contemporaries who argued that for prototype theory and cognitive classification to "impose structure or coherence on some aspect of human experience," then the framework or context of the concept must also be considered.[30] Fillmore demonstrates that the frame boundaries are not fixed, even for concepts that appear semantically straightforward.[31] Fillmore uses the term *bachelor* to illustrate this phenomenon. *Bachelor* generally refers to an unmarried man. However, because people are unlikely to call a male high school student a bachelor, we might adjust the frame to refer to an unmarried man who is of a legal age to marry. A man who murdered his wife would also fit the aforementioned definition of *bachelor*. Adjusting the frame further might result in a more specific definition, such as a man of marriageable age who has never

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[29] Ibid., 7.
[30] Charles J. Fillmore, "An Alternative to Checklist Theories of Meaning," *Proceedings of the First Annual Meeting of the Berkeley Linguistics Society* (1975), 123.
[31] Ibid., 128.

married. Fillmore raises the question of men "professionally committed to the single life," such as the Pope or Dalai Lama—would they still qualify as bachelors?[32] Some might argue that *bachelor* does not apply to such individuals, because they are ineligible for marriage according to the frame of their profession. What then of Pope Benedict XVI, who resigned and retired in 2013—effectively freeing himself of this professional frame? Distilling precise concept meanings is a difficult and shifty matter.

The Way Ahead

George Lakoff, another cognitive linguist at the University of California, Berkeley, warned against two common misapplications of Rosch's prototype theory. The prototype, or best example of a category, should neither be regarded as a specific example (such as orange representing all fruits) nor as "an abstraction, say a schema or a feature bundle."[33] Cognitive categorization is based upon human understanding of an object's properties gained through our interaction with that object in our environment, not upon inherent properties that an object has that are independent of our perception.[34] Even in terms of "basic-level categorization" discussed earlier—perception of color, for example—the determinant attributes used for classification are "a matter of interaction between people and objects" and are therefore "neither wholly objective nor wholly subjective."[35]

Fillmore's discourse illustrates how blurred cognitive category boundaries truly are. This suggests that semantic categories are mutable, and frames can be extended to accommodate new

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[32] Ibid.

[33] George Lakoff, "Cognitive Models and Prototype Theory," *Concepts, e*ds. Eric Margolis and Stephen Laurence (Cambridge: MIT Press, 1999), 392.

[34] Ibid.

[35] Ibid.

members. Presumably, then, leaders can overcome ingrained semantic framing similar to how they can overcome the cognitive bias of framing. Through introspection, self-discipline, and awareness, leaders can "uncover errors in thinking before they become errors in judgment" or evaluation.[36] As collective experience with women in combat arms MOSs accumulates, semantic categories for leaders in all fields will change. Ultimately, force diversification will yield category diversification; cognitive category boundaries will shift and expand, and real experience—rather than expectations—will inform leader evaluations.

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[36] John S. Hammond, Ralph L. Keeney, and Howard Raiffa, "The Hidden Traps in Decision Making," *Harvard Business Review* 84, no. 1 (January 2006): 126.

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