

To prevent another world war, researcher suggests changing how we think

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Empirical Paradox, Complexity Thinking and Generating New Kinds of Knowledge

Bruce J. West, Korosh Mahmoodi and Paolo Grigolini

A new book, titled Empirical Paradox, Complexity Thinking and Generating New Kinds of Knowledge, uses mathematical modeling to address why thinking in terms of either/or outcomes means the inevitability of another world war.

Is another world war inevitable? A U.S. Army researcher studying complex phenomena says yes, unless people stop thinking in terms of either/or outcomes.

Dr. Bruce West, a senior scientist at the Army Research Office, an element of U.S. Army Combat Capabilities Development Command's Army Research Laboratory, authored a book that uses mathematical modeling to understand how the people—and the military—must think to gain advantage in today's society.

In a new book, *Empirical Paradox, Complexity Thinking and Generating New Kinds of Knowledge*, West and his coauthors discuss why thinking in terms of either/or outcomes means the inevitability of another [world war](#).

The first half of the book discusses these topics for a general audience and also addresses how individuals make decisions under stress.

The second half of the book is more technical, geared toward network science specialists. The authors discuss the [mathematical model](#) used to draw the conclusions made in the first half of the book.

"Adversaries think in such terms, you either get what you want, or you do not," West said. "Can a different way of thinking produce a different outcome? If either/or is the only way of thinking then a person would be either a protagonist or an antagonist, but in reality a person can be both, either, or neither, and often is. Recognizing that opens the door to novel solutions."

The authors suggest that by using both/and thinking a dynamic resolution can be achieved. The Army has initiated this strategy with the introduction of the gray zone, in which an adversary's aggressive acts do not warrant a war response, but neither can they be interpreted as

peaceful and benign. Responses to acts in the gray zone, challenge traditional either/or thinking, requiring an appropriate measured and yet unpredictable response. On an individual level, this translates into an understanding that a basically selfish individual can also be a hero, a consequence of the complexity of being human.

West has more than 40 years of experience developing the mathematical models and formal infrastructures to bridge the gaps separating the understanding and control of the complex phenomena within the life, physical and social sciences.

West's work has quantified the information transfer between complex networks, as in the control of physiological systems by the brain, the adaptation of an individual to social groups, and the control of crowds by zealots. He has authored more than 300 peer-reviewed journal articles, 35 book chapters and 21 books, garnering more than 20,000 citations resulting in an h-factor of 70.

The book is coauthored by Dr. Paolo Grigolini, a professor in the Department of Physics at the University of North Texas and Korosh Mahmoodi, a postdoctoral researcher in the School of Computer Science at Carnegie Mellon University.

The books is available on leading bookseller websites.

More information: Empirical Paradox, Complexity Thinking and Generating New Kinds of Knowledge:

www.cambridgescholars.com/empirical-paradox-complexity-thinking-and-generating-new-kinds-of-knowledge

Provided by The Army Research Laboratory

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