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Red Force Interaction in Situating Cognition

An Extension of the Dynamic Model of
Situating Cognition with Implications

Gregory A. Miller

Nita Lewis Miller

Lawrence G. Shattuck

Naval Postgraduate School

Monterey, CA

Outline

- Introduction & motivation
- Review of Dynamic Model of Situated Cognition with current extensions
- Proposed extension
- Implications of including Red Forces
- Potential applications
- Conclusions and way ahead

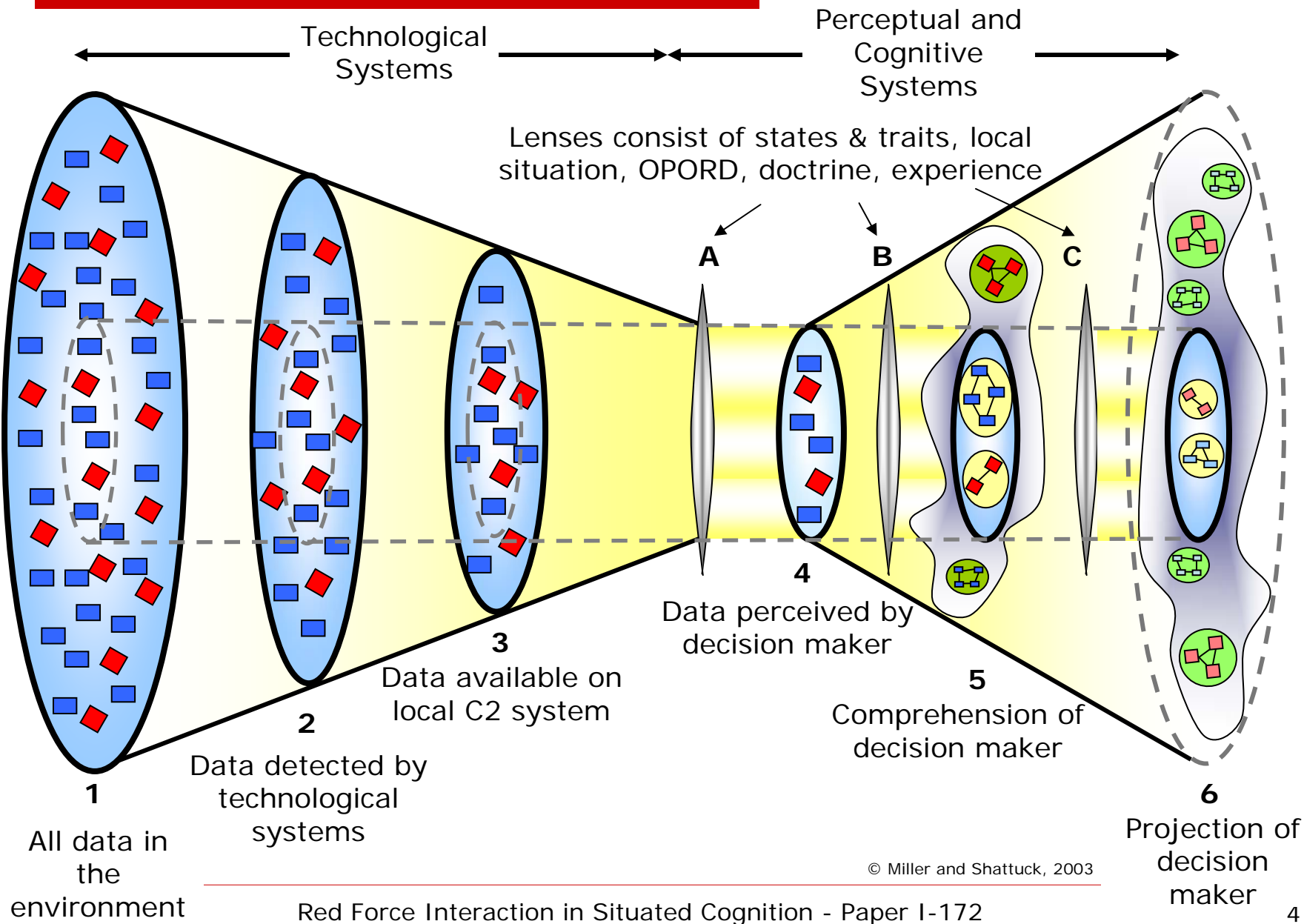
Introduction & Motivation

- Original model introduced in 2003
 - Explicitly included human elements
 - More complete DOMLPF analysis of C2 systems
 - Consistent with capabilities-based assessment
- Applied in numerous situations
- One weakness: only friendly forces!

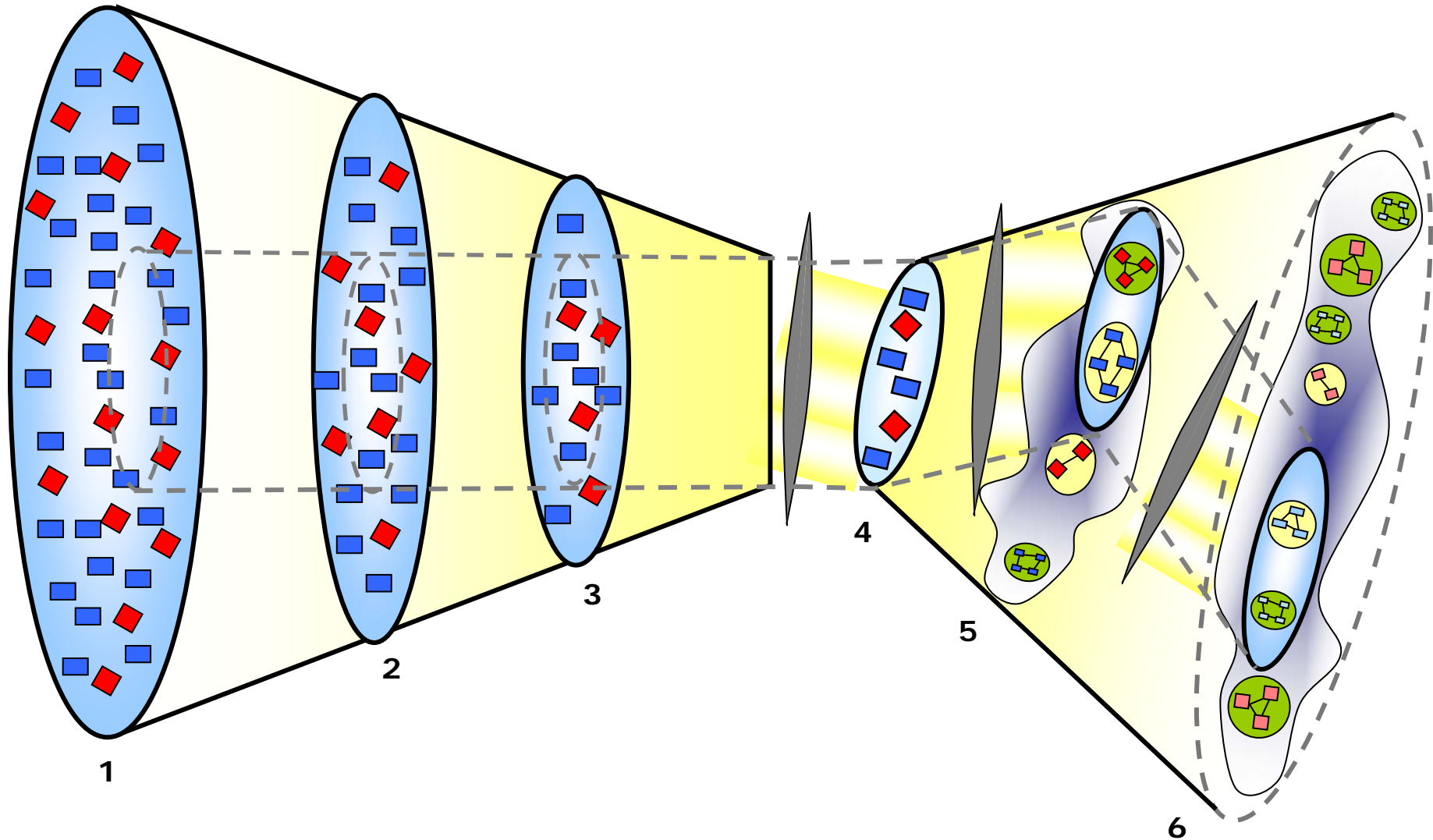
“Where is your enemy in your C2 Model?”

General Sir Rupert Smith
11th ICCRTS, 2006

Original DMSC

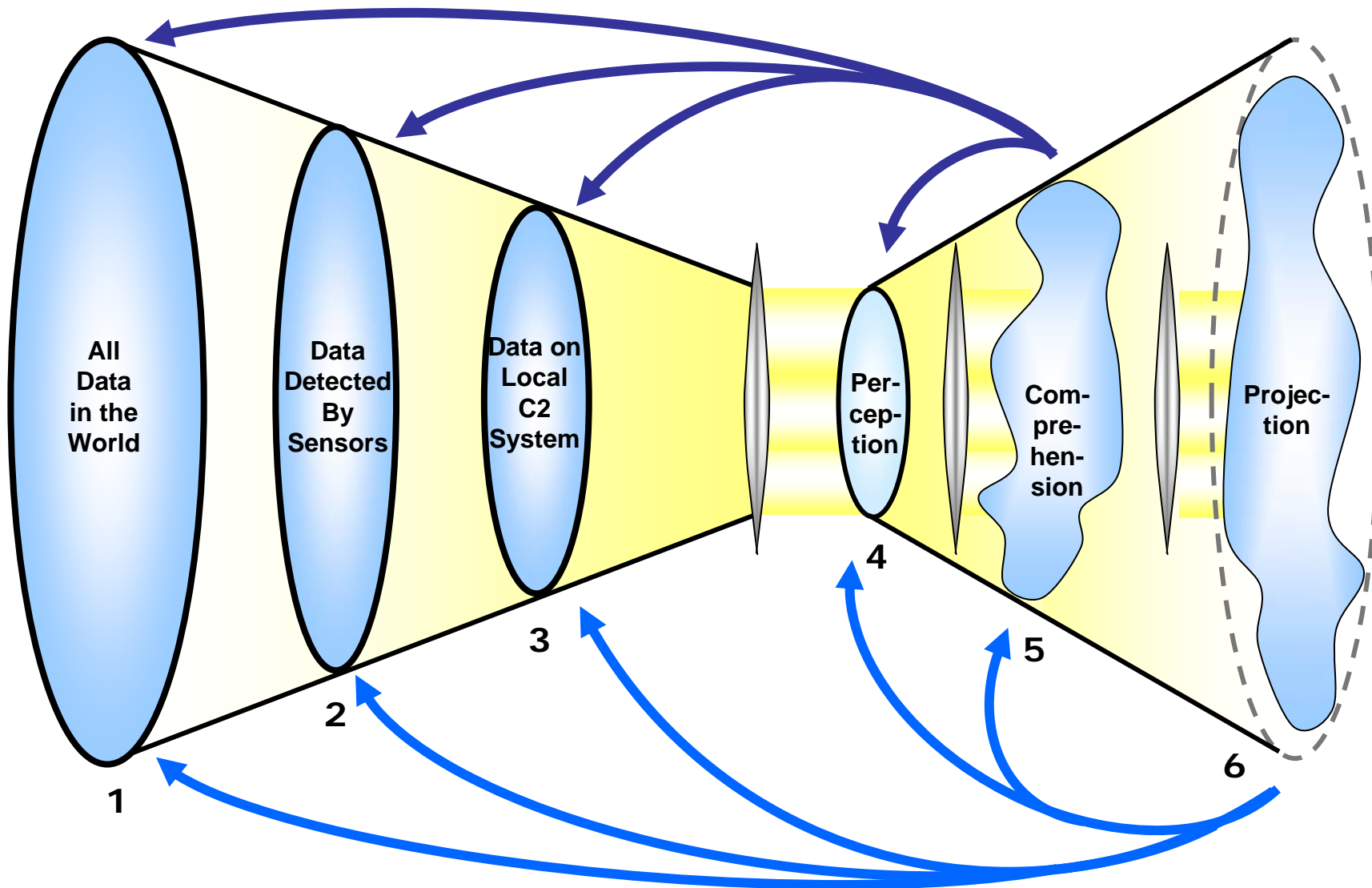


Lens Distortions

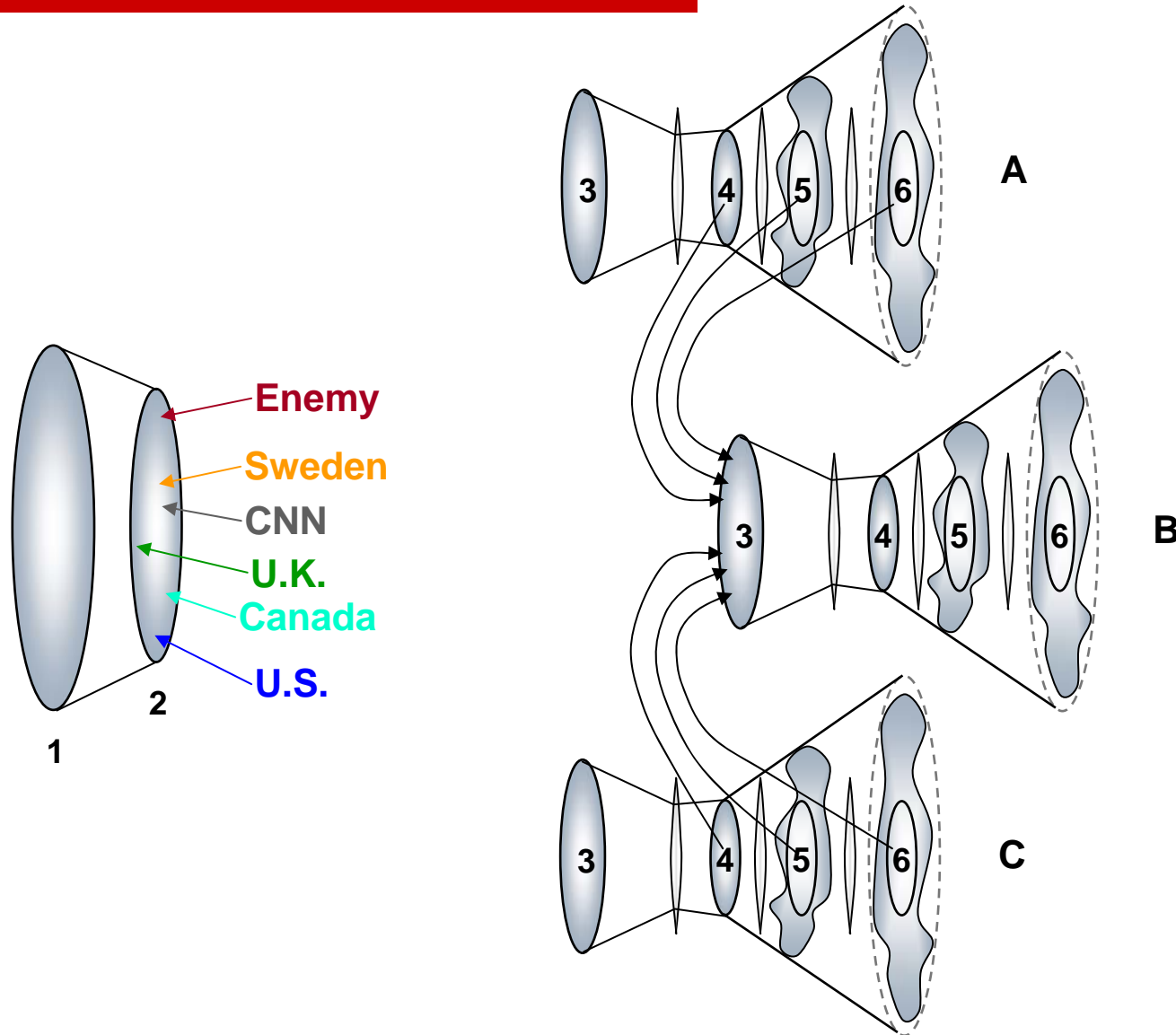


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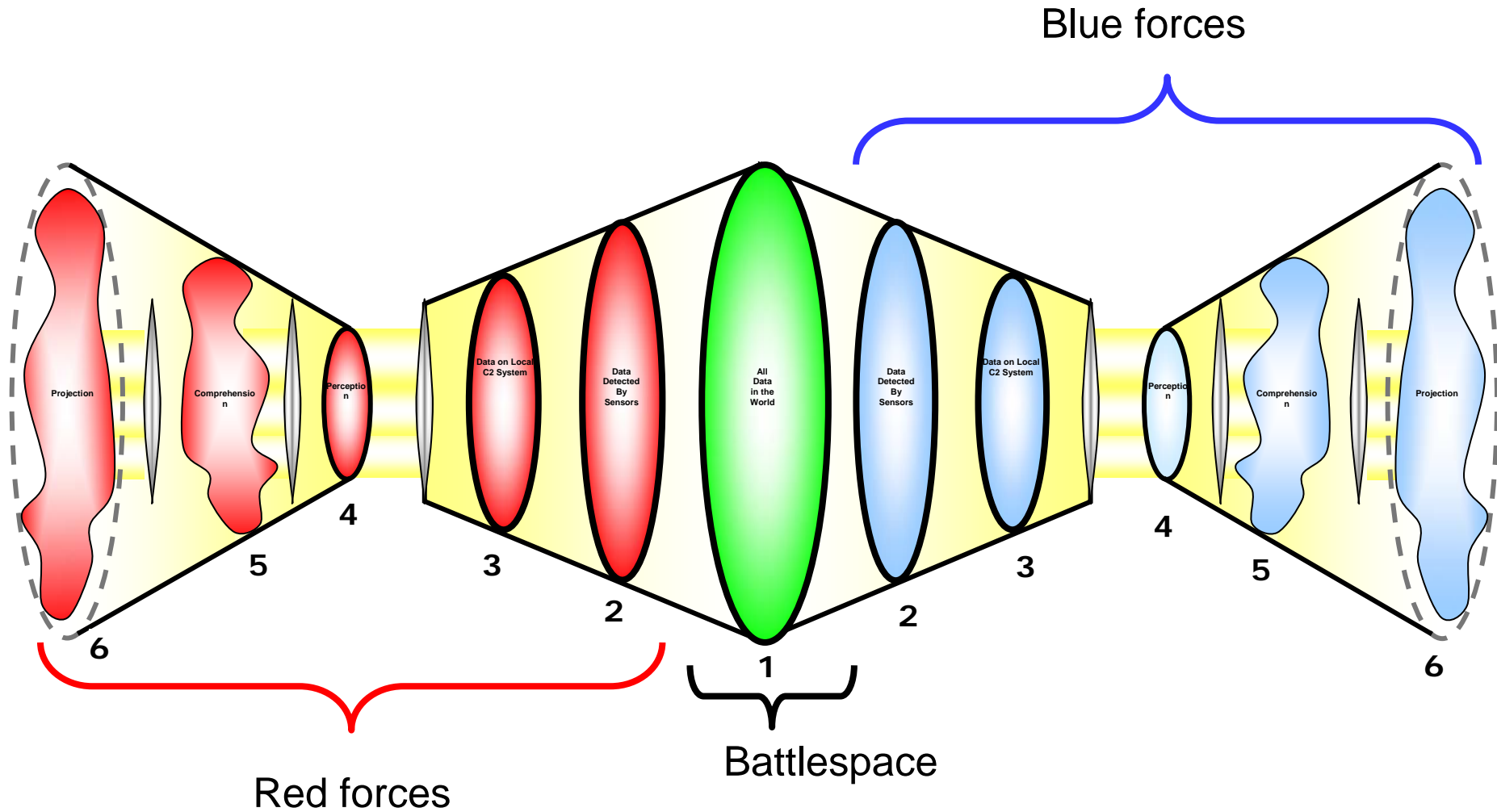
Oval Feedback



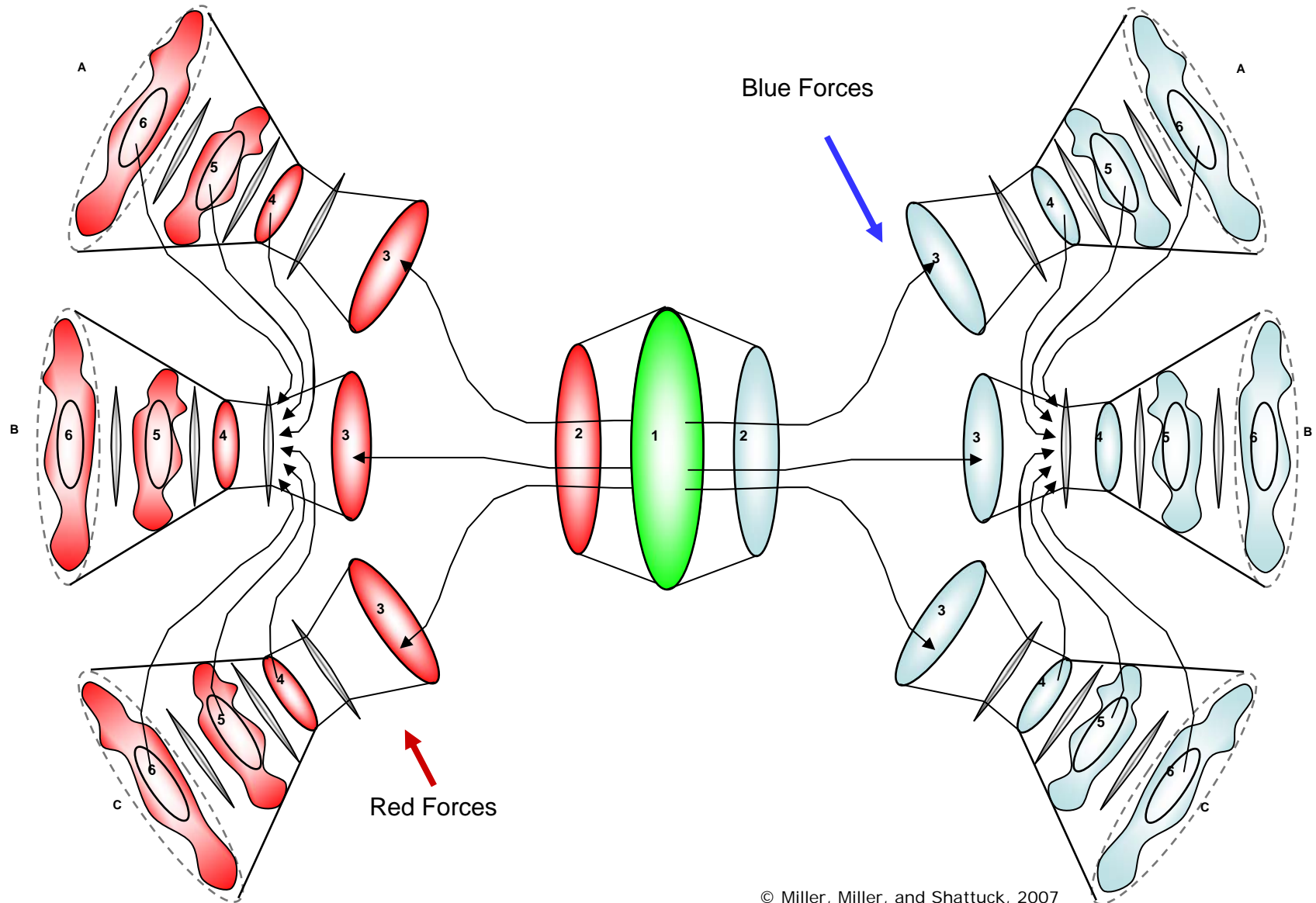
Applied to Coalition Forces



Proposed Extension



Red and Blue Teams



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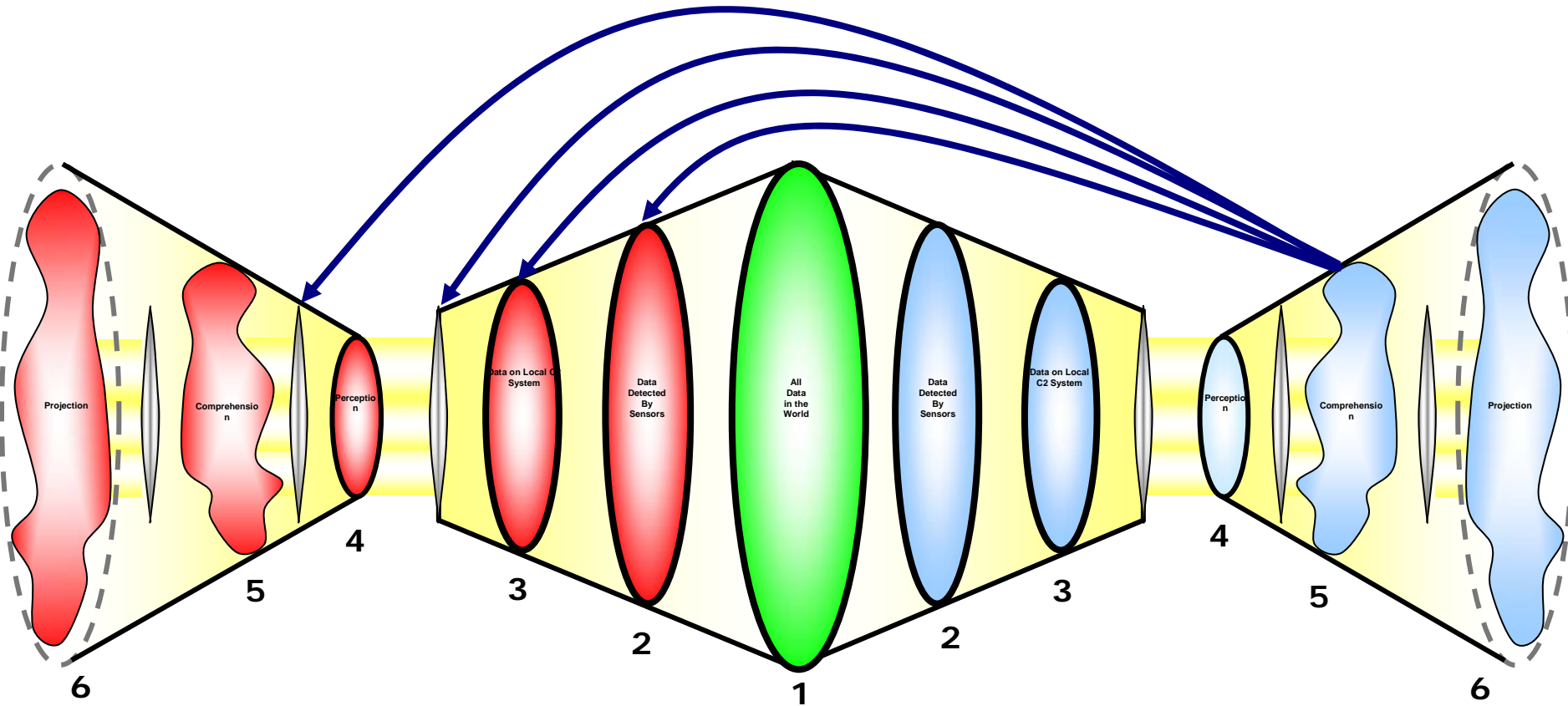
Implications

“While the ultimate objective of most IO is intended to affect the minds of the enemy decision-makers, IO operates against the information used to make those decisions and not against those minds directly.”

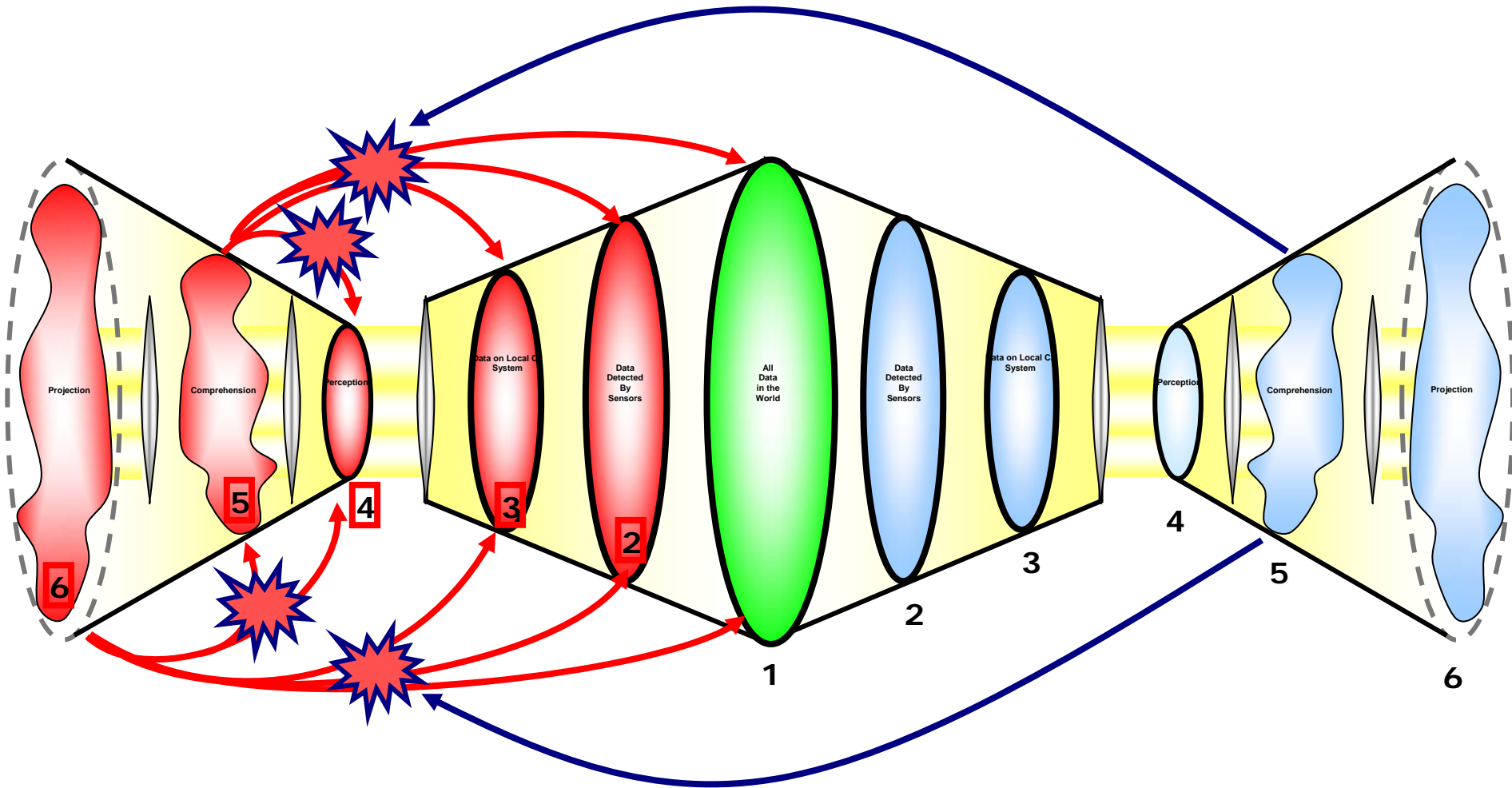
Patrick Allen

Information Operations Planning, 2007

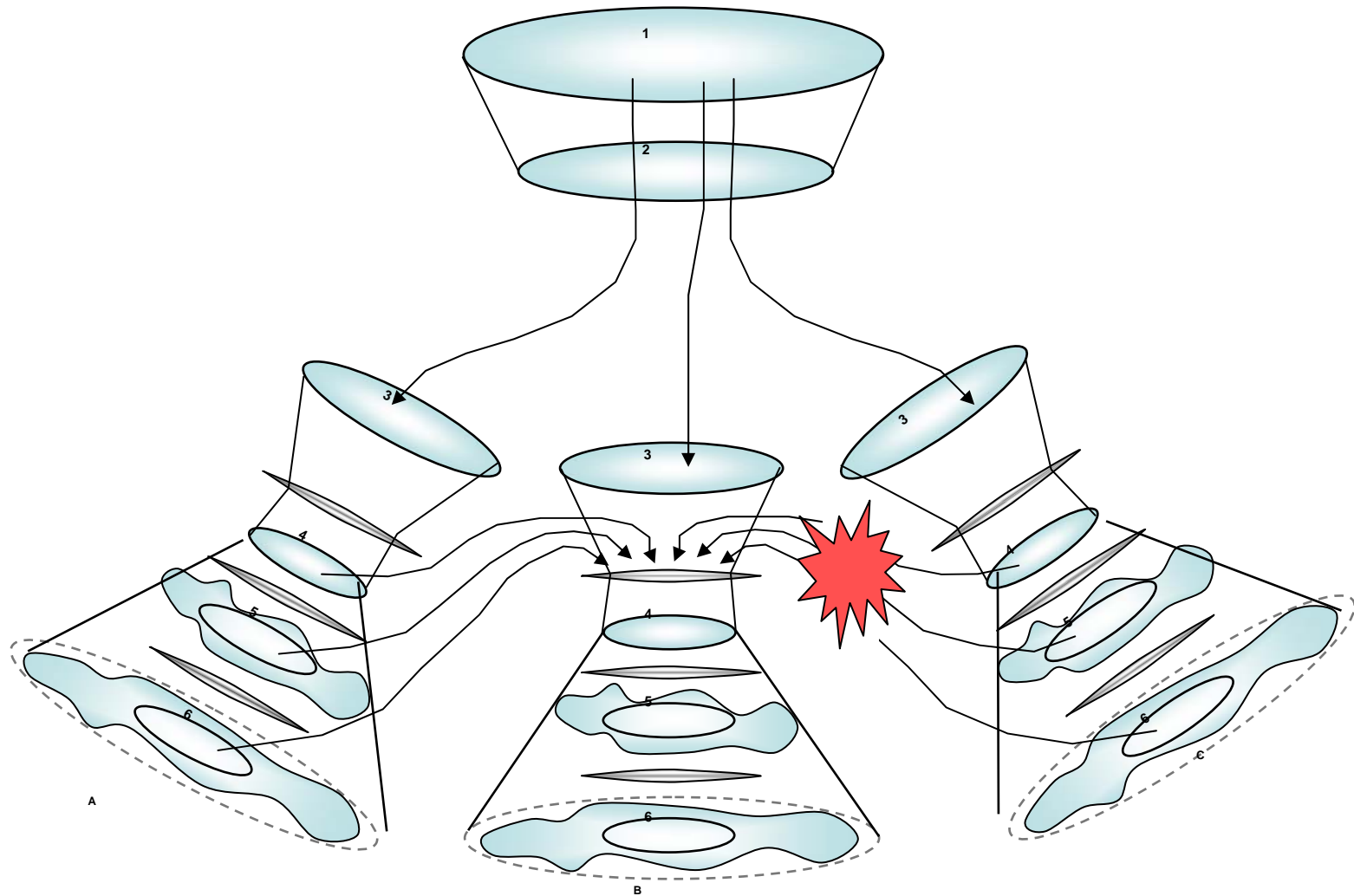
C2 Warfare



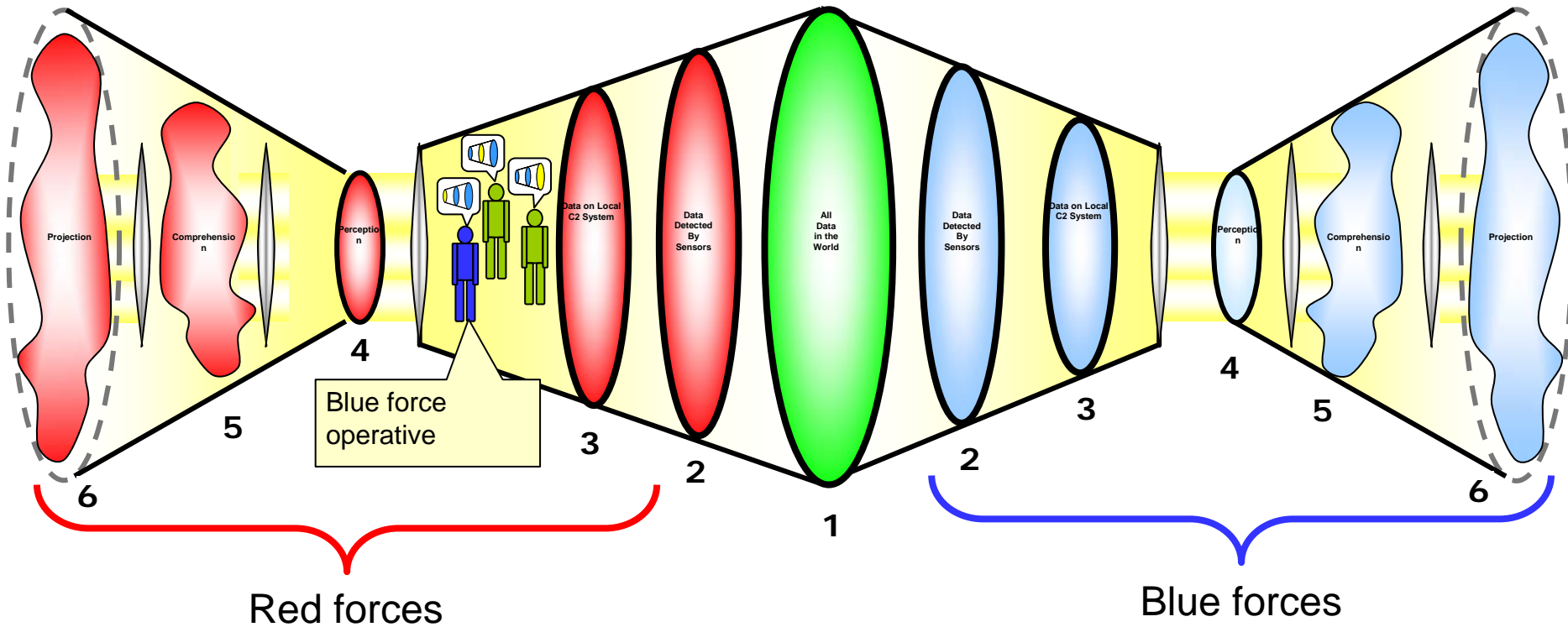
Disruption of Feedback



Counter-Communications Action



Direct Human Interaction



Potential Applications

- Sensor-to-decision maker information chain
 - All sensor and communication systems are targets
 - Destruction or disruption via kinetic & nonkinetic effectors
 - Deception
 - Decision Makers are the ultimate target (just C2 warfare, not all of IW)
- C2W MOE selection
 - Ineffectiveness – lack of timeliness, accuracy, relevance
 - Information Age planning factors (JMEM for IO)
- Self-synchronizing offensive IO

Tool - Enabler

Event analysis & predictive modeling efforts of network-centric forces opposing each other in the battlespace

- Realistic information flow: collection, dissemination, and use
 - Lost information, mistakes in judgment, and the impact of the human element is clear
- Commander's decisions represented explicitly; based on his perception of the battlespace
- Flexible enough to be applied across the spectrum of military missions
- Adaptable enough to be used at any level of warfare and for any size organization

Conclusions

The focus is on *what* the attacker intends to accomplish with his actions against an adversary's C2 systems rather than on *how* those actions will be accomplished. Form should follow function. The objectives of C2W should be established before considering an adversary's vulnerabilities and corresponding points to apply deception or denial, consistent with any other effects-based operations planning and execution.

Way Ahead

- Just the initial proposal for these extensions
- Ultimate utility can be proved through venues already using original
 - Laboratory and field-based experimentation
- Goal: provide system designers and campaign planners with an aid
 - Realize the full potential of network centric warfare
 - Precision control of perception

Back-Up



Advantages

- Opposing commanders' perceptions explicitly represented
 - Effects of information operations to be considered
 - "Ripple effect" of processing degraded information is clear: inaccuracies in commander's perception and projection
- C2 systems represented as entities in the operational environment
 - Targeted like any other entity
 - Their ultimate utility is enabling decision-makers to take action
- Information operations for opposing forces are explicitly included
 - Deliberate attack & protection of C2 systems allows us to model degradation of the adversary's information
 - Impacts his decision-making process

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