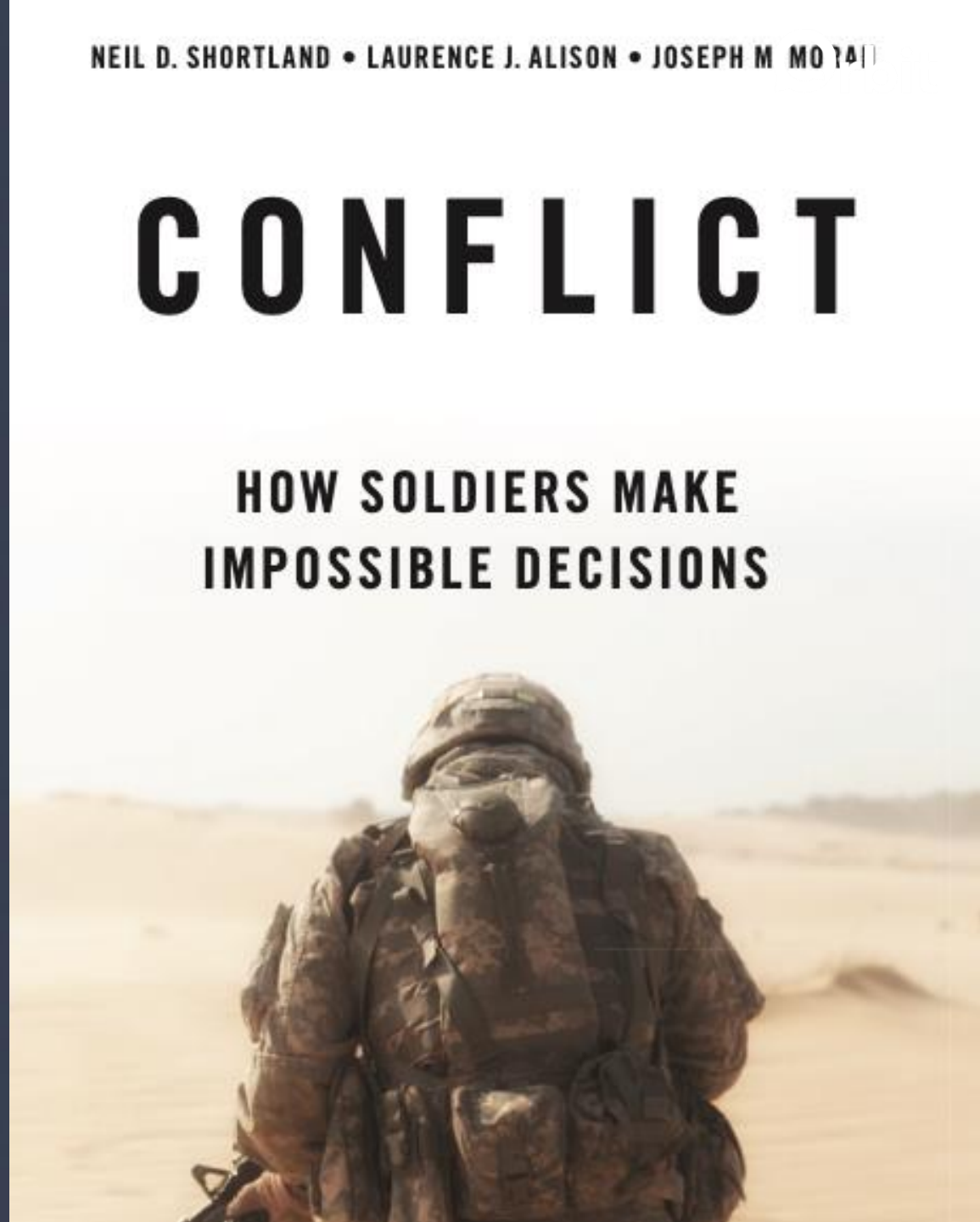
Decision-Making: Environments and Inertia

Professor Neil Shortland Ph.D,
May 20th, SBI conference

MIND @ UML

ABOUT ME

- 2011 – 2013: Defense Science and Technology Laboratory – Social Psychologist for the Armed Forces
- 2014 – 2017 – PhD Military Decision-Making
- 2017: Director Center for Terrorism and Security Studies
- Present: Professor, School of Criminology and Justice Studies
- Funded research for Department of Homeland Security, United Kingdom Ministry of Defense, Office of Naval Research, National Institute of Justice, Defense Advanced Research Projects Agency
- Research Expertise: Decision-making in high-stakes environments, individual differences and decision-making, human-AI interaction and decision-making.

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U.S. AIR FORCE
1109


OUR HAND
PLAY YOU
PAR

GOALS

- The goals of todays talk are three-fold:
- **Learn** the strategies of decision-making and where they are relevant
- **Identify** the cognitive processes that underpin each of they and why they are different
- **Self-assess** how we (and others) may vary in these processes
- Three ways this is relevant – (1) assessing the self, (2) assessing others, and (3) empathy and evocation.

WHAT IS A DECISION

Cohen and Lipshitz – trimodal model of decision-making:

- Matching (policy)
- Re-commitment (experience)
- Choice (uncertainty management)

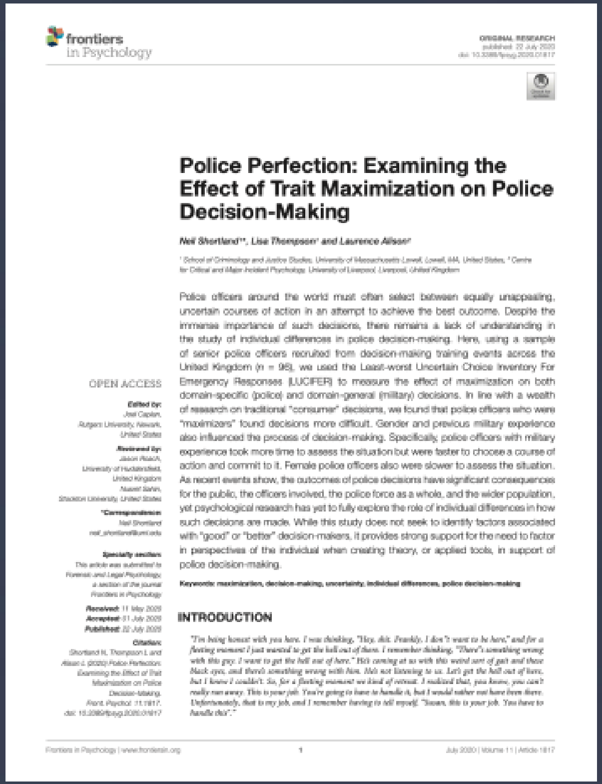
Each one starts from a different question (what are they supposed to do vs., what do they want to do, and why?) and they vary in **intensity** and **frequency,** and how they are trained (and how often).

LUCIFER

A field to measurement sandbox

- Interviews with practitioners in the field, extraction of key processes, measurement of relevant traits/concepts, and testing of hypothesis

- Personality, values, environment, sleep, physical strain, uncertainty, technology.


frontiers in Psychology
ORIGINAL RESEARCH
published: 22 July 2020

Police Perfection: Examining the Effect of Trait Maximization on Police Decision-Making

Neil Shortland[1]*, Lisa Thompson[1] and Laurence Alison[2]

Police officers around the world must often select between equally unappealing, uncertain courses of action in an attempt to achieve the best outcome. Despite the immense importance of such decisions, there remains a lack of understanding in the study of individual differences in police decision-making. Here, using a sample of senior police officers recruited from decision-making training events across the United Kingdom (n = 96), we used the Least-worst Uncertain Choice Inventory For Emergency Responses (LUCIFER) to measure the effect of maximization on both domain-specific (police) and domain-general (military) decisions. In line with a wealth of research on traditional "consumer" decisions, we found that police officers who were "maximizers" found decisions more difficult. Gender and previous military experience also influenced the process of decision-making. Specifically, police officers with military experience took more time to assess the situation but were faster to choose a course of action and commit to it. Female police officers also were slower to assess the situation. As recent events show, the outcomes of police decisions have significant consequences for the public, the officers involved, the police force as a whole, and the wider population, yet psychological research has yet to fully explore the role of individual differences in how such decisions are made. While this study does not seek to identify factors associated with "good" or "better" decision-makers, it provides strong support for the need to factor in perspectives of the individual when creating theory, or applied tools, in support of police decision-making.

Keywords: maximization, decision-making, uncertainty, individual differences, police decision-making

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INTRODUCTION

"I'm being honest with you here. I was thinking, "Hey, dit. Frankly, I don't want to be here," and for a fleeting moment I just wanted to get the hell out of there. I remember thinking, "There's something wrong with this guy. I want to get the hell out of here." He's coming at us with this weird sort of gait and these black eyes, and there's something wrong with him. He's not listening to us. Let's get the hell out of here, but I knew I couldn't. So, for a fleeting moment we kind of retreat. I realized that, you know, you can't really run away. This is your job. You're going to have to handle it, but I would rather not have been there. Unfortunately, that is my job, and I remember having to tell myself, "Susan, this is your job. You have to handle this"."


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Military maximizers: Examining the effect of individual differences in maximization on military decision-making

Neil Shortland[a,]*, Laurence Alison[b], Lisa Thompson[a]

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ABSTRACT

The present study investigates the role maximization plays in explaining individual differences in decision-making in high-uncertainty situations. There is a wealth of evidence that maximization affects decision-making, yet the types of decisions that have been studied have been consumer-focused. Despite the known importance of maximization, the boundaries of maximization have not been explored. This research extends the study of maximization by evidencing that individual differences in maximization influence decision-making with a sample of military personnel (n = 287) when they make both military (domain specific) and non-military (domain general) decisions. Furthermore, taxometric analysis allowed the researchers to explore the latent structure of maximization, identifying that it can also be conceptualized as a categorical (rather than a traditionally continuous) variable. Overall, high maximizers found decisions more difficult, were slower to choose an option and decide. These findings are in accord with a wealth of previous research on the effects of maximization, but demonstrate that the effect of maximization extends to applied decision-making with applied samples who make decisions in high-uncertainty situations. These findings have important theoretical implications for the study of maximization and the study of decision-making under uncertainty, as well as applied implications for issues such as personnel selection.

1. Introduction

"A good plan violently executed now is better than a perfect plan executed next week."

George S. Patton

As emphasized in the famous George S. Patton quote above, effective military decision-making involves balancing the time taken to reach a decision and the degree to which it is "ideal" (Claireux, Garson, Thibault, Vezina, & Walker, 2002). Accordingly, naturalistic research (research observing decision-making in the field, Klein, 1989) has identified that individuals, including members of the Armed Forces (Pascual & Henderson, 1997; Shortland & Alison, 2019), can suffer from delays in decision-making driven by redundant efforts to find a "ideal" solution (referred to as "redundant deliberation," Power & Alison, 2018) when making high-uncertainty decisions in which there is no clear "ideal" choice. Effective military decision-making is therefore centered on the ability to satisfice, rather than maximize, within a given situation. Maximization is the individual-level predictor of tendencies to expend cognitive energy searching through many possible alternatives with the goal of finding the optimal outcome (Schwartz et al., 2002). Experimental research has found that people who consistently try to maximize their decisions are more prone to procrastination (Osiurak et al., 2015), and more likely to engage in counterfactual thinking (Schwartz et al., 2002). Despite (1) the potentially negative implications of seeking maximization in military and other high-uncertainty decisions, and (2) the known negative effects of maximization on decision-making (see Cheek & Schwartz, 2016) to date, there has been no investigation of the effect of maximization on decision-making in military scenarios.

1.1. Maximization

Dar-Nimrod, Rawn, Lehman, and Schwartz (2009) argues that individual differences in maximization moderate the "paradox of choice" in which people are attracted to larger assortments, but often dissatisfied with their eventual choice (see also Schwartz, 2004). Maximization differentiates people based on their tendency to approach choices with the goal of finding the "best" possible option vs. satisficing for an option that is "good enough" according to their own

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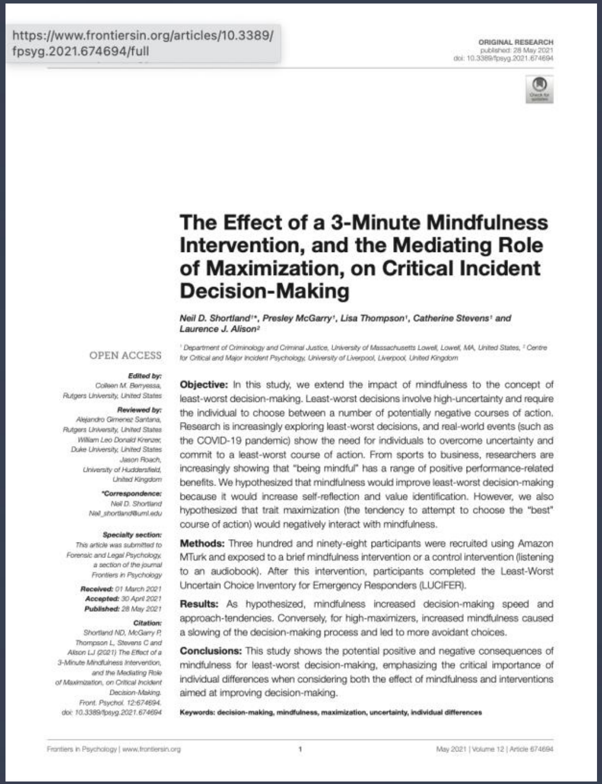
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ORIGINAL RESEARCH
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The Effect of a 3-Minute Mindfulness Intervention, and the Mediating Role of Maximization, on Critical Incident Decision-Making

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Objective: In this study, we extend the impact of mindfulness to the concept of least-worst decision-making. Least-worst decisions involve high-uncertainty and require the individual to choose between a number of potentially negative courses of action. Research is increasingly exploring least-worst decisions, and real-world events (such as the COVID-19 pandemic) show the need for individuals to overcome uncertainty and commit to a least-worst course of action. From sports to business, researchers are increasingly showing that "being mindful" has a range of positive performance-related benefits. We hypothesized that mindfulness would improve least-worst decision-making because it would increase self-reflection and value identification. However, we also hypothesized that trait maximization (the tendency to attempt to choose the "best" course of action) would negatively interact with mindfulness.

Methods: Three hundred and ninety-eight participants were recruited using Amazon MTurk and exposed to a brief mindfulness intervention or a control intervention (listening to an audiobook). After this intervention, participants completed the Least-Worst Uncertain Choice Inventory for Emergency Responders (LUCIFER).

Results: As hypothesized, mindfulness increased decision-making speed and approach-tendencies. Conversely, for high-maximizers, increased mindfulness caused a slowing of the decision-making process and led to more avoidant choices.

Conclusions: This study shows the potential positive and negative consequences of mindfulness for least-worst decision-making, emphasizing the critical importance of individual differences when considering both the effect of mindfulness and interventions aimed at improving decision-making.

Keywords: decision-making, mindfulness, maximization, uncertainty, individual differences

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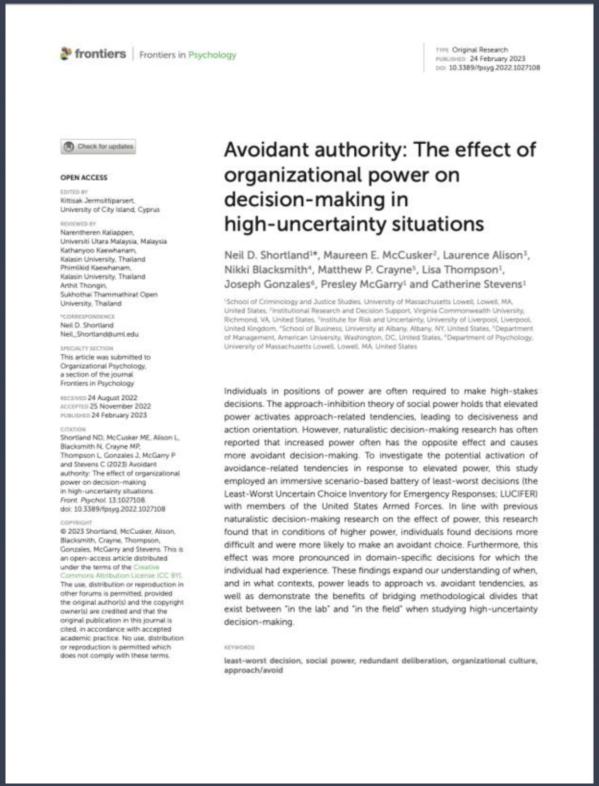
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Avoidant authority: The effect of organizational power on decision-making in high-uncertainty situations

Neil D. Shortland[1]*, Maureen E. McCusker[2], Laurence Alison[3], Nikki Blacksmith[4], Matthew P. Crayne[5], Lisa Thompson[1], Joseph Gonzales[6], Presley McGarry[1] and Catherine Stevens[1]

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Individuals in positions of power are often required to make high-stakes decisions. The approach-inhibition theory of social power holds that elevated power activates approach-related tendencies, leading to decisiveness and action orientation. However, naturalistic decision-making research has often reported that increased power often has the opposite effect and causes more avoidant decision-making. To investigate the potential activation of avoidance-related tendencies in response to elevated power, this study employed an immersive scenario-based battery of least-worst decisions (the Least-Worst Uncertain Choice Inventory for Emergency Responses; LUCIFER) with members of the United States Armed Forces. In line with previous naturalistic decision-making research on the effect of power, this research found that in conditions of higher power, individuals found decisions more difficult and were more likely to make an avoidant choice. Furthermore, this effect was more pronounced in domain-specific decisions for which the individual had experience. These findings expand our understanding of when, and in what contexts, power leads to approach vs. avoidant tendencies, as well as demonstrate the benefits of bridging methodological divides that exist between "in the lab" and "in the field" when studying high-uncertainty decision-making.

KEYWORDS
least-worst decision, social power, redundant deliberation, organizational culture, approach/avoid

Three core functions

WHAT DO HUMANS NEED

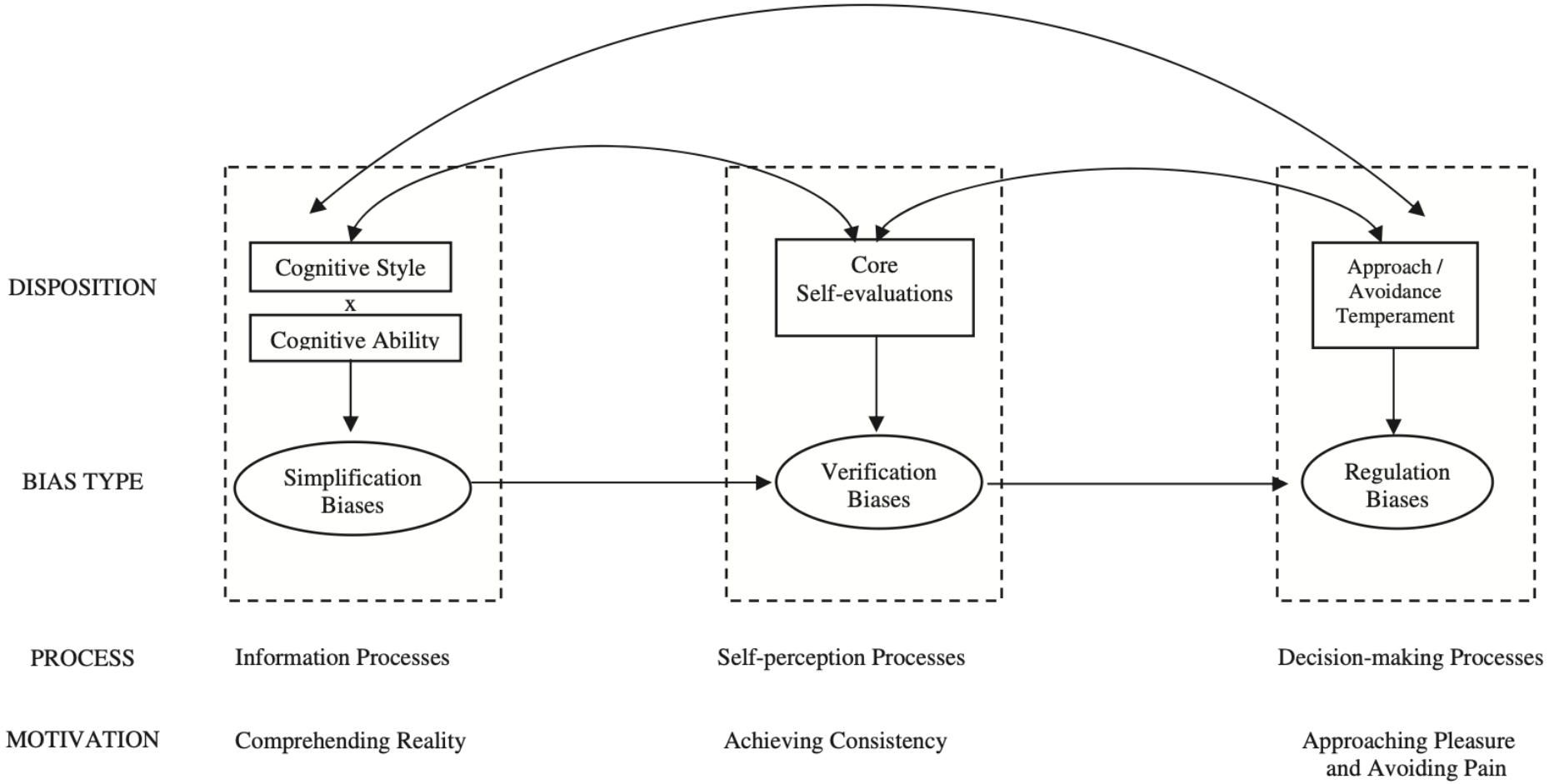


Figure 1. Relationships among bias categories.

Oreg & Bayazit (2009)

Sensing **Choosing** **Doing**

Three different processes, three different systems, three opportunities for variance

Sensing

SENSEMAKING

Evolutionary drive to understand what is going on.

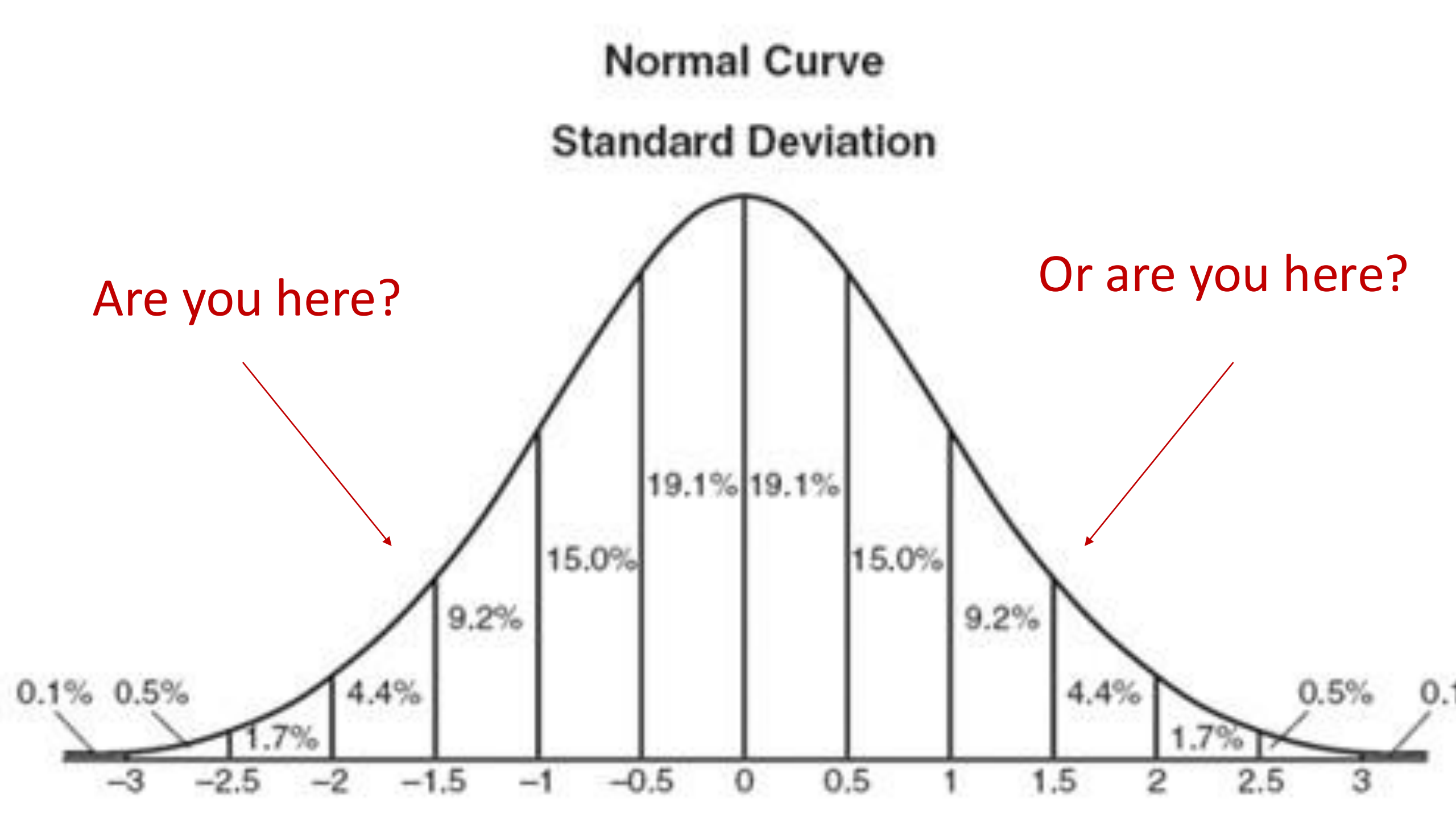
Uncertainty blocks action and is uncomfortable

We engage in many strategies to overcome uncertainty and enable action (from information requests to bias)

MAXIMIZING WHAT WE HAVE AND WANT

Step 1: On the paper in front of you to quickly answer these 6 questions on a scale of 1 “not at all like me” to 5 “Absolutely like me” .

- In the car I often change song, station, etc., to see if something better is available, even if I am relatively satisfied with what I’m listening to.
- No matter how satisfied I am with my job, it’s only right for me to be on the lookout for better opportunities.
- I often find it difficult to shop for a gift for a friend
- Picking movies/TV shows is difficult. I’m always struggling to pick the best one.
- No matter what I do, I have the highest standards for myself.
- I never settle for second best.


Normal Curve
Standard Deviation
Are you here?
Or are you here?
0.1%
0.5%
1.7%
4.4%
9.2%
15.0%
19.1%
19.1%
15.0%
9.2%
4.4%
1.7%
0.5%
0.1
−3
−2.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
2.5
3

MAXIMIZING WHAT WE HAVE AND WANT

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- I often find it difficult to shop for a gift for a friend
- Picking movies/TV shows is difficult. I’m always struggling to pick the best one.
- No matter what I do, I have the highest standards for myself.
- I never settle for second best.

MEDICAL/MILITARY MAXIMIZATION

In our work with soldiers, it impacts situational awareness time, decision difficulty and willingness to approach problems (Shortland et al., 2021).

With individuals who conduct medical triage it impacted the amount of patient information they wanted to see, and their willingness to black tag.

ELSEVIER

Social Science & Medicine

Volume 352, July 2024, 117006

Medical maximization: The effect of personality on triage decision-making

Laurence Alison [b], Neil Shortland [a], Cicely Herrod-Taylor [b], Catherine Stevens [a], Paul Christiansen [b]

https://doi.org/10.1016/j.socscimed.2024.117006

Highlights

- Mass Casualty Incidents (MCIs) overwhelm the ability of local medical resources.
- We measure if trait maximization impacts decision-making during MCI triage.
- Trait maximization impacts willingness to use a ‘black tag’ on a patient.
- Individual differences impact how people make decisions during MCI.

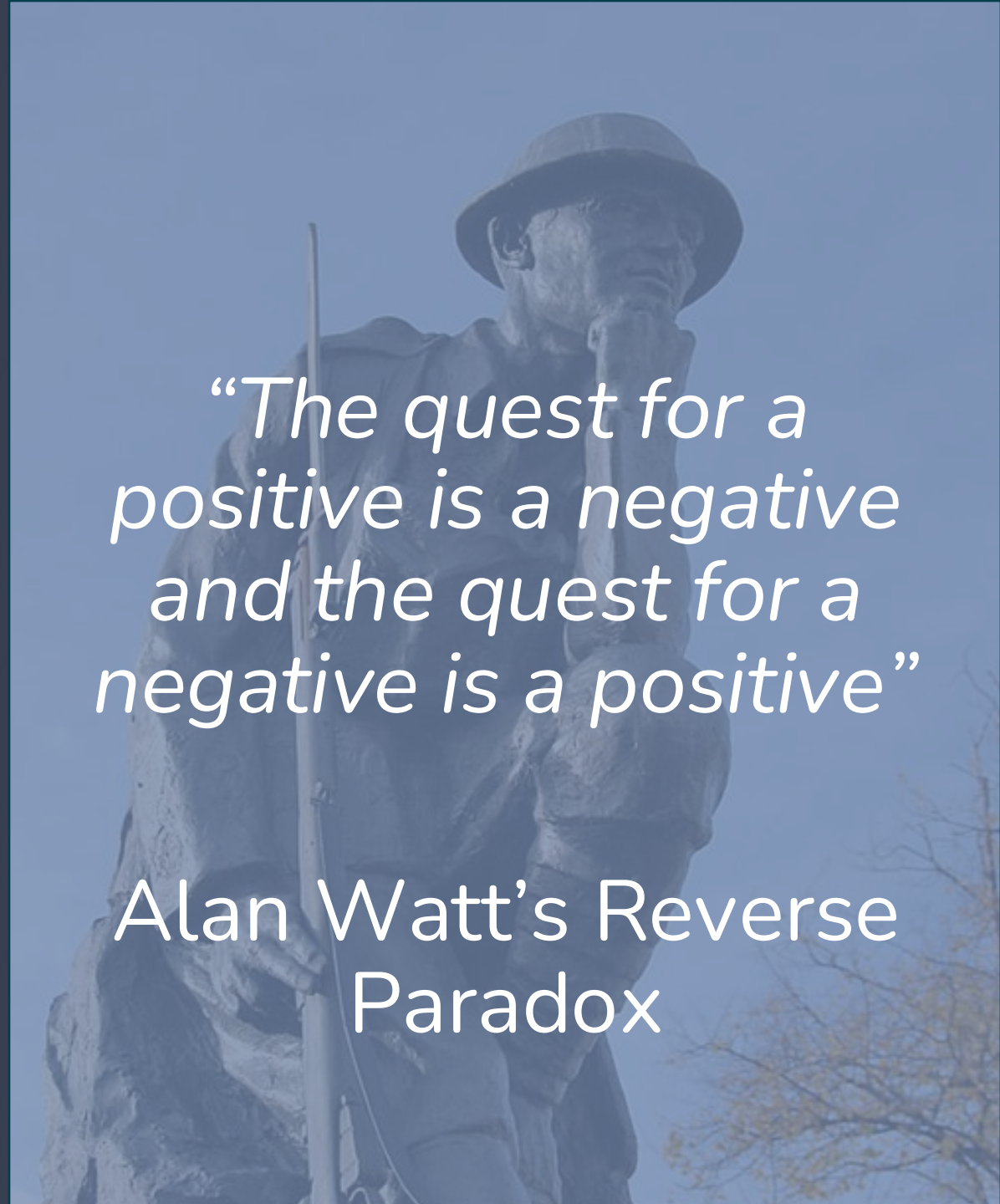
SENSEMAKING

We have individual differences in our comfort with uncertainty, the intensity of effort we will exert to have certainty, and our thresholds for action. This is impacted by mindset and situation

Inertia comes from not being certain enough (and wanting to be)

Maladaptive behavior comes from wanting too much, or too little

Adaptive behavior comes from knowing how much is reasonable to have in that situation.



"The quest for a positive is a negative and the quest for a negative is a positive"

Alan Watt's Reverse Paradox

Choosing

VALUES AND TRADEOFFS

Values are deeply held beliefs about the world, and ourselves. They include factors such as the need to be kind, belief that the world is just, everyone's' right to free will.

Overall values can be thought of in two ways, based on how important they are to you (sacred and secular)

The combination of values in a decision dictates how hard that decision will be for you, and the consequences of making a choice.

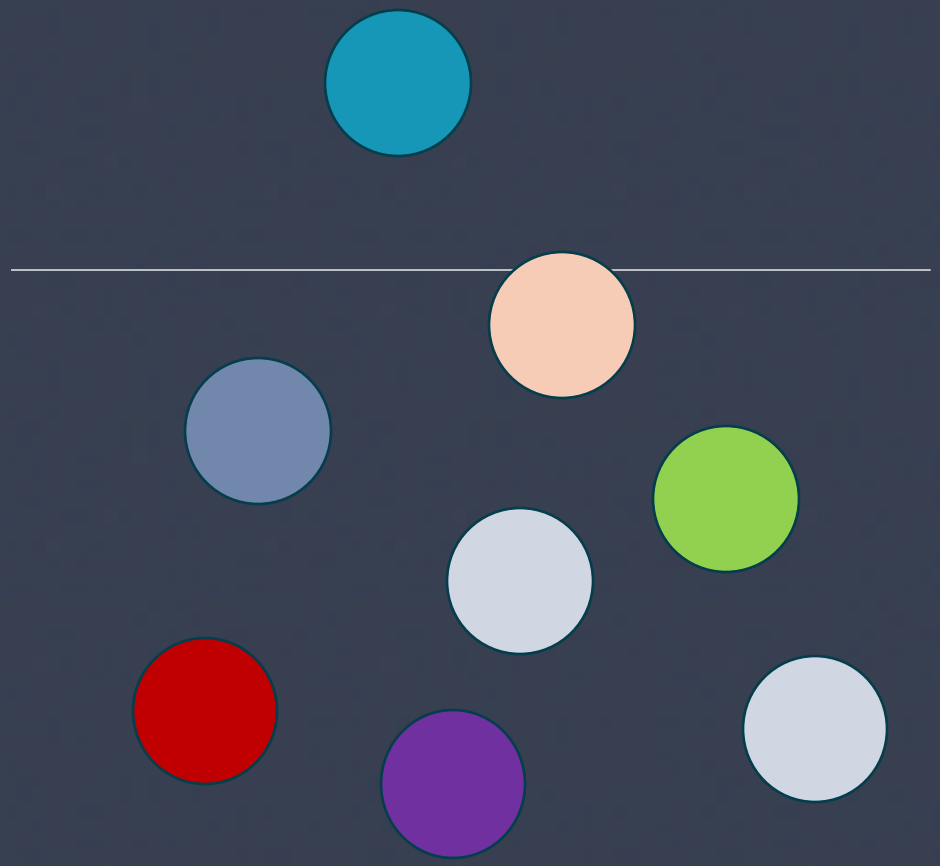
Step 1: On the paper in front of you rank these values in terms of most to least important *(noting that all are likely very important)*

Step 2: highlight those that are *absolutely non-negotiable to you.*

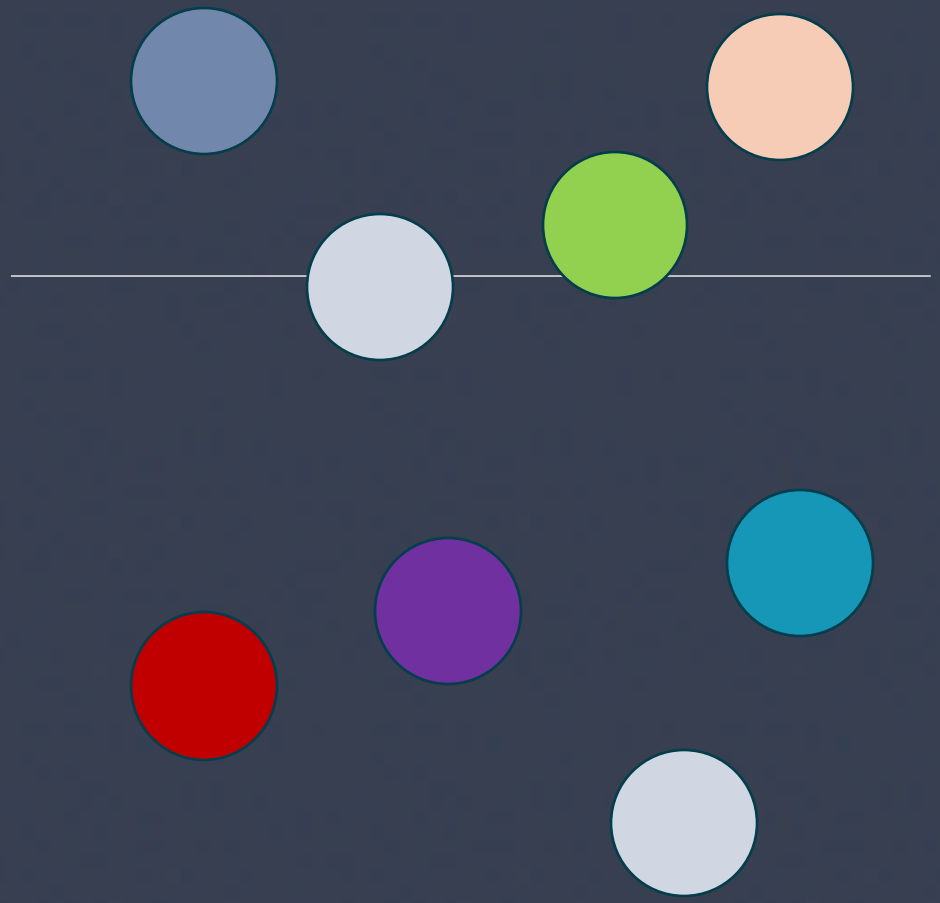
- Protecting the life of a teammate/partner (1)
- Pursue a known enemy (2)
- Protecting the life of people under my command (3)
- Completing the mission (4)
- Protecting the life of a civilian (5)
- Avoid blame for my actions (6)
- Obey the orders of a superior (7)
- Everyone’s right to free will (8)

VALUES AND TRADEOFFS

Person A



Person B



Item	Factor 1 Loading	Factor 2 Loading
Factor 1: Egocentric Sacred Values (alpha = 0.72)		
Pursue a known enemy	**0.74**	
Completing the mission	**0.70**	
Obey the orders of a superior	**0.70**	
Avoid blame for my actions	**0.66**	
Need to exert my authority over others	**0.65**	
Act within the law	0.34	0.31
Factor 2: Empathetic Sacred Values (alpha – 0.72)		
Protecting the life of a civilian		**0.80**
Protecting the life of people under my command		**0.78**
Protecting the life of a fellow soldier		**0.78**
Everyone's right to free will		**0.58**
Avoid negative consequences for your action	0.31	0.34

	Estimate	Std. Error	z value	P-value
1. Do you sent a helicopter to rescue a soldier (yes/no)				
(Intercept)	1.20748	0.90586	1.333	0.1825
Egocentric	**-0.13196**	**0.06432**	**-2.052**	**0.0402***
Empathetic	0.07474	0.05269	1.418	0.1561
3. Are you going to launch an airstrike (yes/no)				
(Intercept)	-0.04357	0.84065	-0.052	0.9587
Egocentric	**0.12741**	**0.05809**	**2.194**	**0.0283***
Empathetic	**-0.09848**	**0.04875**	**-2.02**	**0.0434***
5. Are you going to authorize an airstrike (yes/no)				
(Intercept)	1.49438	1.05752	1.413	0.1576
Egocentric	**0.15826**	**0.06578**	**2.406**	**0.0161***
Empathetic	**-0.11916**	**0.05897**	**2.021**	**0.0433***

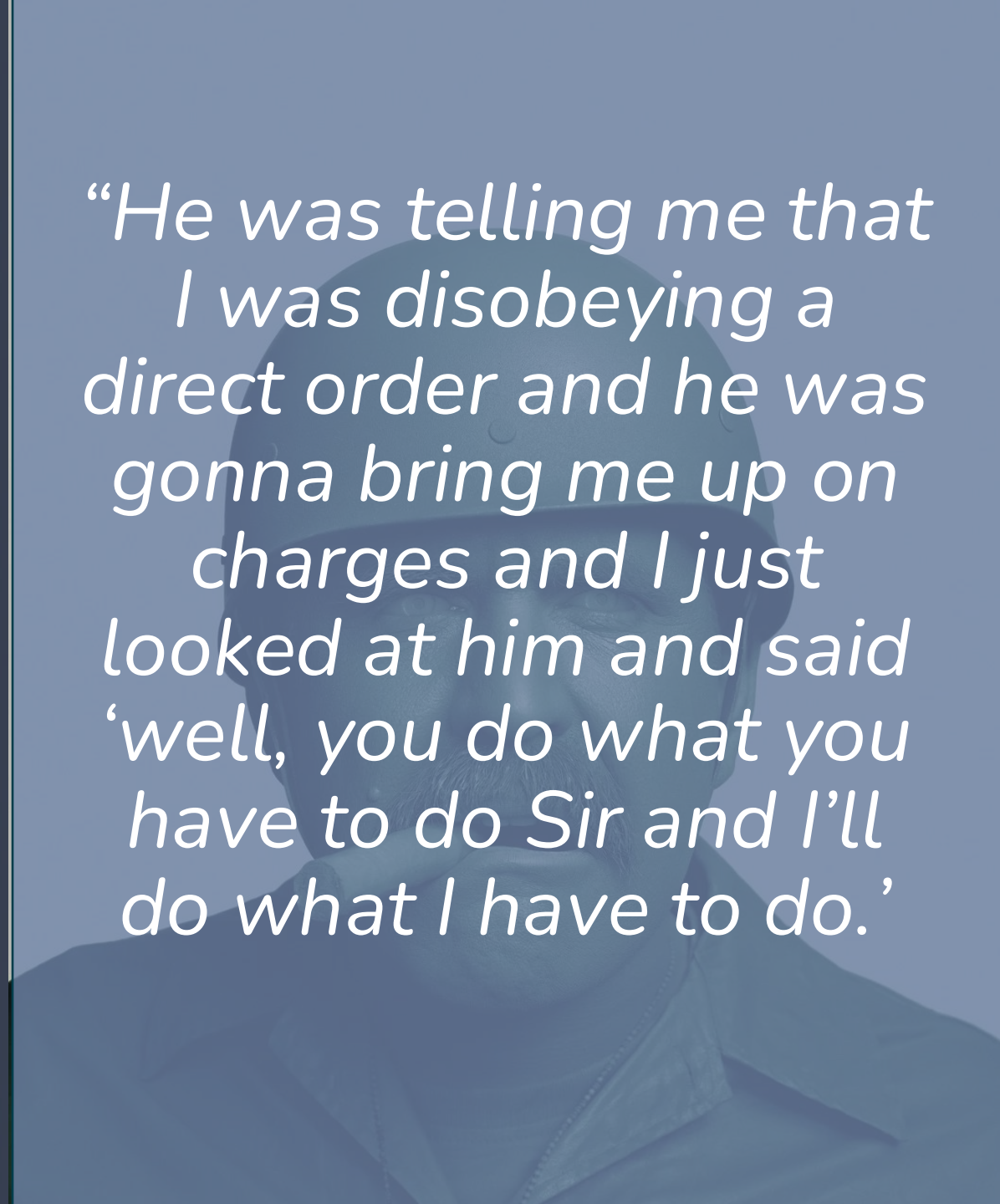
CHOOSING (Values)

High-stakes decisions require us to choose between competing values. What values someone holds impacts (1) what they are likely to choose, and (2) how difficult they will find different decisions.

Inertia comes from the inability to decide what to do

Maladaptive comes from prioritizing the wrong value

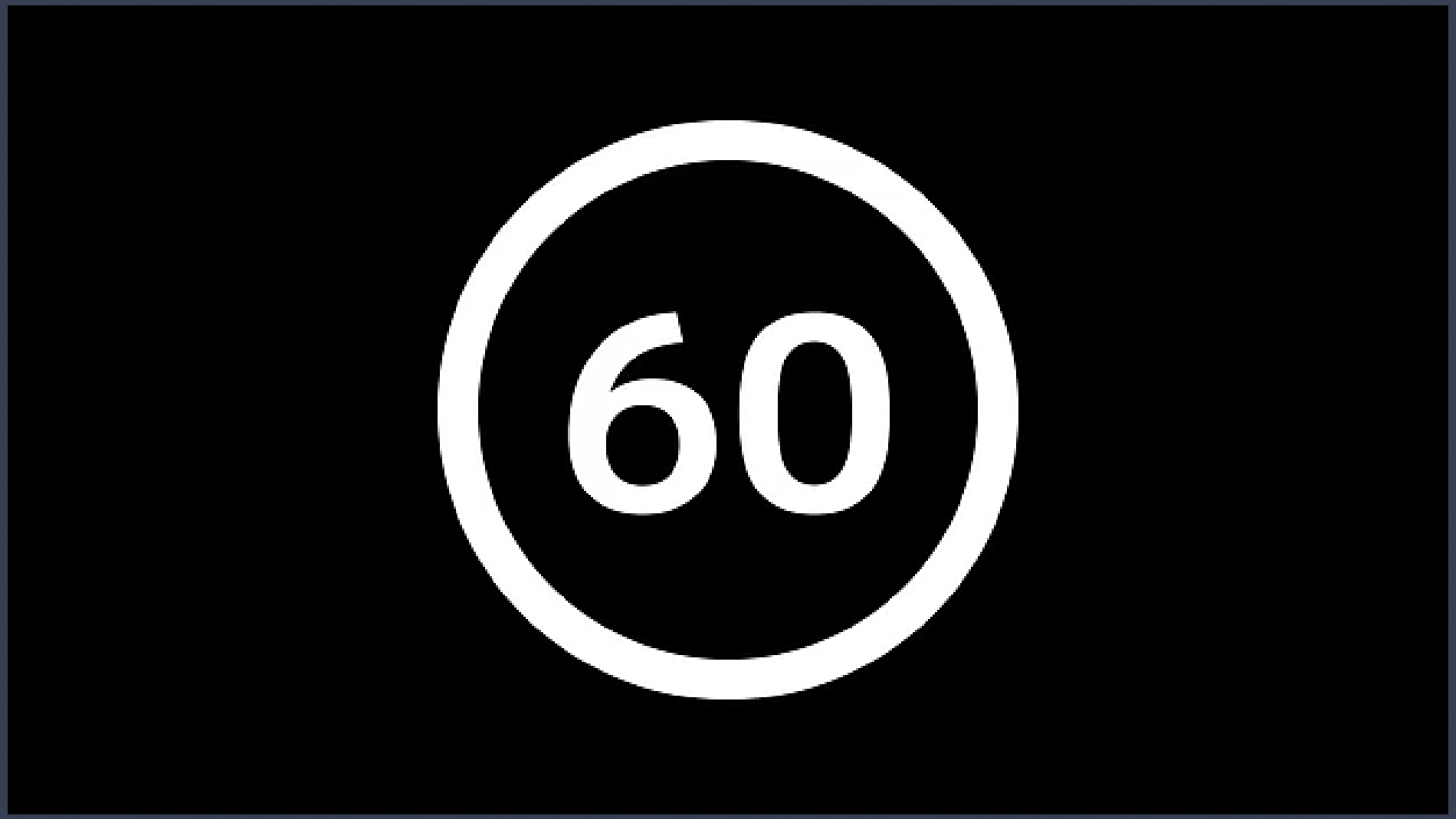
Adaptive behavior comes from protecting and prioritizing the right value (to you and/or the organization).



"He was telling me that I was disobeying a direct order and he was gonna bring me up on charges and I just looked at him and said 'well, you do what you have to do Sir and I'll do what I have to do.'

DOING

TIME URGENCY



ACTING

We have individual differences in our feelings for the need to act. These can be driven by (1) a worry about time (time urgency), (2) a need to seize a positive (positive urgency), or (3) our need to escape a negative (negative urgency)

Inertia deciding too late or not at all.

Maladaptive deciding too slow or too fast

Adaptive is using the right amount of time in the right way, for that specific decision.

TWO CORE PROCESSES

Improving decision-making requires two critical functions.

(1) Self-awareness: Understanding the individual differences that we possess that **interact** with the decision-making process

(2) Self-control: Being able to override the effect of these factors, when necessary (and lean into them when necessary) to make sure we are adapting properly.

LUCIFER – HOW CAN WE HELP?

Training what skills to train and how (e.g., MoD Hercules program)

Assessment – what traits to assess and what it means (e.g., ARI)

Decision Support – integrating and designing decision-support systems and aids (e.g., DARPA)

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The Washington Post
Democracy Dies in Darkness

Innovations

The military wants AI to replace human decision-making in battle

The development of a medical triage program raises a question: When lives are at stake, should artificial intelligence be involved?

March 29, 2022 More than **4 years ago**

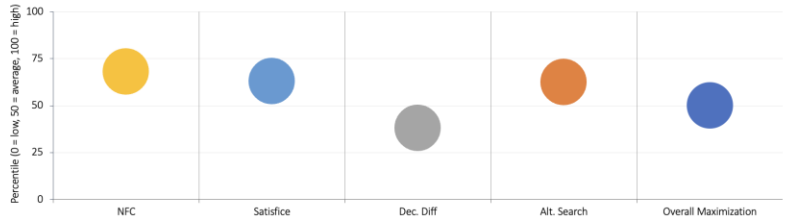
6 min 308 Make us preferred on Google

LUCIFER – HAVE A GO

Your Decision Making Profile

Here we show you a more detailed breakdown of your decision-making profile. For each group of scores we show what "percentile" you are in in comparison to other people who have taken these tests. So the graph below shows if your score is in the 0-25% (i.e., lowest scores), 26 – 50% (low to average), 51% - 75% (average to high) or 76% - 100% (very high). The scores shown below are:

1. **Need for Closure:** Same as before
2. **Maximization:** Within the Maximization scale we measured three distinct sub-types of maximization;
    1. **Satisficing:** Your ability to settle for a satisfactory outcome, rather than attempting to seek the best outcome
    2. **Decision Difficulty:** A overall measure of how hard you find decision making in general (different to the other measure of decision difficulty which measures how hard you found *these specific decisions*).
    3. **Alternate search:** Your tendency to search for alternative options rather than the options you currently have.
    4. **Overall Maximization:** Your combined score of satisficing, decision difficulty and alternate search.



Critical & Major Incident Psychology Research Group

UNIVERSITY OF LIVERPOOL

Overall Percentage Agreement

	Decision 1		Decision 2	
	Retrieve 78 %	Leave	Retrieve 42 %	Leave
	Evacuate 78 %	Stay	Send it pedal cutter 64 %	Do not
	Civilians 72 %	Terrorist	Civilians 56 %	Terrorist
	Rescue Mission 92 %		Disobey order 58 %	Obey
	Launch Mission 78 %	Leave	Launch Mission 71%	Leave

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