Artificial Ignorance

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In an article entitled "Artificial ignorance: the 10 biggest AI failures of 2017," TechRepublic reports on blunders that call into question when artificial intelligence (AI) will actually become intelligent. Meanwhile, in NewScientist, Michael Brooks says, "Scaremongering about rampaging robots means we aren't addressing the real issues with artificial intelligence." Yet, reflecting on the risks associated with artificial *ignorance* Terence C. Gannon asks, "Could machine intelligence enable our darker impulses?"

With respect to the human part of the equation, Ben Dixon observes:

> Augmented intelligence (AI), also referred to as intelligence augmentation (IA) and cognitive augmentation, is a complement—not a replacement—to human intelligence. It's about helping humans become faster and smarter at the tasks they're performing.

Roger Gorman agrees the real thrust is to augment human intelligence (HI+), rather than replace it. He notes the term *augmented intelligence* describes the extension of human intelligence through technology. "Throughout history," he observes, "humans have used technology … to change the way we work, live, and interact." Now, he argues, "augmented intelligence is being used to describe how AI is going to interact with people; not through replacing them, but through improving what they already know."

With respect to what we *need* to know, Paul Lashmet defines artificial ignorance as "*ignoring unimportant data*, allowing you to focus on what is important and necessary in order to create value." However, the concept he describes might be more accurately termed "intelligent ignor-ance" (II) or rational ignorance.

By contrast, truly artificial ignorance (A<I>) or artificial un-intelligence (A≠I, aka stupidity) entails intentionally failing to attend to information that is relevant to the achievement of our objectives, such as by choosing to ignore evidence simply because it conflicts with our biases.

According to Wikipedia, *intelligence* has been defined as: "… the capacity for logic, understanding, self-awareness, learning, emotional knowledge, reasoning, planning, creativity, and problem solving."

Wikipedia further suggests that intelligence can be more generally described as "the ability to perceive or infer information, and to retain it as knowledge to be applied towards adaptive behaviors within an environment or context."

However, a more straightforward and operationally meaningful definition might encompass our ***ability to acquire, evaluate, and apply information to achieve our objectives***. The true measure of first-order, *natural intelligence* (I) is the achievement of near-term objectives we establish for ourselves.

A higher-order, somewhat more artificial level of intelligence entails the capability to understand the law of unintended consequences and to sustain the results we desire in support of longer-term, more visionary goals serving not merely our self-interests but also universal human values, including the well-being of others (UsI). Such intelligence is not "natural" simply because it was not required for survival of our ancestors in the immediacy of prehistoric environments. Consequently, it is neither embedded in our genes nor human nature.

That does not imply we don't care about others. We clearly are empathetic and have the herd instinct, some of us more than others. The genes of those with none of those characteristics died out long ago. It's just that our minds are not naturally wired to understand the longer-term and more remote results of our actions.

In Oxford Scholarship Online, Philip Mirowski and Edward Nik-Khah conclude their philosophical study of artificial ignorance in the discipline of economics, as follows: "Since economists have banished scholarly history of economic thought from their departments, they feel safe in telling any just-so story about the development of an economics of information. But the joke is on them: believing they are wizards of information management, they have become even more ignorant than the agents in their theories. Believing the market validates truth, they become complicit in the spread of ignorance."

Marin Abrams argues that AI without data is artificial ignorance and he suggests the problem is multi-faceted. "When thinking through conflicting policy objectives," he says, "we like to say on one hand this, on the other hand that." However, to address information policy problems he asserts three hands are needed:

- On the first hand, we want better outcomes. But better outcomes … require the constant evolution of advanced analytic tools fed by data…
- On the second hand, we are concerned that probability-based decision making has impacts on both autonomy and the humanity of the decisions we make…
- On the third hand, the accuracy of the decisions made by analytic tools are only as good as the quality and quantity of the data available to the tools.

On yet another hand, however, most ignorance is not only natural but also necessary. If we were forced to attend to all stimuli impacting our sensory organs, we would be incapacitated and unable to think, much less act. In techspeak, we would be subject to a personal cognitive denial of service attack.

Moreover, even if we do have the capacity to attend to information, it may be preferable to remain rationally ignorant, for example, if the cost of acquiring the knowledge exceeds the benefit in terms of any influence we may be able to exert to produce an outcome different than what may otherwise occur.

The Capability Maturing Model (CMM), comprised of five levels, provides a useful framework for evaluating the state of our knowledge and intelligence:

1. *Initial* (chaotic, ad hoc, individual heroics) – Que Será, Será. (Whatever will be will be.) Some good things may happen, serendipitously, but not because we have systematically acquired the knowledge to produce the results we desire.
2. *Repeatable* – We have defined our near-term objectives and perhaps identified the necessary inputs and begun to apply the processes required to achieve our objectives.
3. *Defined* – All of the necessary inputs have been made available and we have mastered the processes required to transform them into the desired outputs.
4. *Capable* – External partners are effectively engaged and outputs are efficiently processed to produce the desired outcomes.
5. *Efficient* – The desired outcomes are routinely produced, measured and reported to stakeholders, who are actively engaged in providing inputs and feedback in a virtuous cycle of continuous improvement in pursuit of a vision supported by long-term goals driven by human values.

For those of who'd like to begin the climb toward more artificially mature levels of intelligence (I+), a good place to start would be to document our personal values as well as our goals and objectives in open, standard (ISO 17469-1), machine-readable Strategy Markup Language (StratML) format.

For Uncle Sam's agencies, doing so is a legal mandate. For other organizations who prefer not to remain artificially ignorant, it is merely a good practice.