Reality Bias: The Mother of All Cognitive Biases

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Abstract

Part of the *Cognitive Case Study Series*[1] from Cabrera Research Lab, this case explores reality bias, the role of metacognition in reducing it, and the foundational role of reality bias in creating all other cognitive biases.

[1] A "cognitive case study"—inspired by the cases used in business and policy schools that involve students in real-world problem solving—is designed to engage students in metacognition (thinking about thinking). Cognitive cases introduce the cognitive patterns underlying our mental models, and then encourage us to explore how our and others' mental models affect our emotions, behavior, action, and even our reality. These cases explore a broad range of topics, from politics to social issues to the physical sciences to everyday phenomena, with the purpose of enabling readers to see the cognitive structures at play across a variety of realms.

> *"All experiences (dhammā) are preceded by mind (manopubbangamā), having mind as their master (manosehā) created by mind (manomayā)."*
>
> –Buddha [1]

> *"Cogito ergo sum. (I think, therefore I am.)"*
>
> –René Descartes [2]

First, Recognize Reality Bias

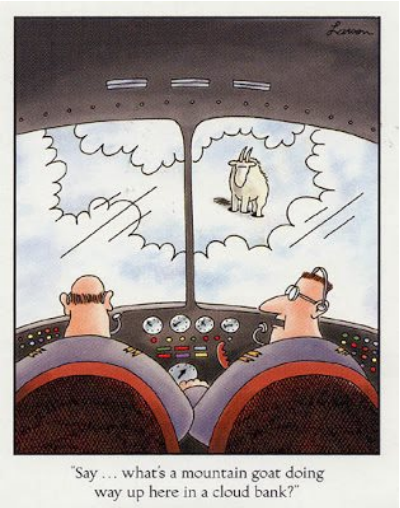

Figure 1: Our reality bias can be quite strong.

A mental model is our understanding of the world—an approximation of reality based upon our ideas, beliefs, and past experiences. "Reality bias" refers to our faulty belief that we experience the real world *directly*. Instead, we perceive the real world *indirectly* through mental models—unique filters that highlight some things, ignore others, and add interpretations. If we notice when our models do not conform to reality, we can use that discrepancy to improve them. This feedback cycle represents the learning process. Figure 1 illustrates how strong our reality bias can be. Even when presented with facts to the contrary, we may still choose to conform reality to our mental model and look for entirely different reasons for what would otherwise be obvious. It also illustrates (albeit in a humorous way) how dangerous reality bias can be.

Mental models shape our understanding of everything around us—from simple to wildly complex phenomena. Our mental model in turn shapes our behavior, generating real-life consequences. Figure 2 illustrates that moving from being unaware to aware of the mental models that are always there is the first step in reducing reality bias.

The underlying problem is that people with deeply rooted biases often don't think of those biases as mental models that can be wrong or adapted. They don't even recognize that they have a mental model. They think that what they perceive *is* reality. The solution to the problem of reality bias is to think of mental models as being in between you and reality. Thus, a big part of

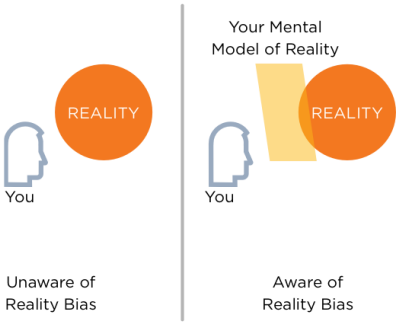

Figure 2: Awareness of mental models reduces reality bias. [3]

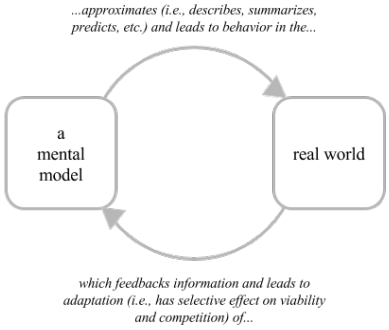

Figure 3: Mental models approximate the real world, which provides feedback to adapt our mental models [3]

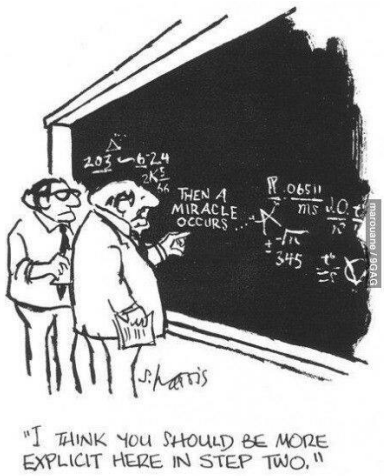

Figure 5: DSRP provides the cognitive code to be more explicit in our mental model building and to avoid reality bias.

reducing reality bias is becoming aware of the veil that we wear every moment of every day—the veil of past experience, preconceived assumptions, and human biases. In summary, the solution to reality bias is to *see* that mental models *exist*. This entails 2 realizations:

- Humans don't interact with reality directly; and
- Humans indirectly relate to reality through our mental models of it.

Next, Evolve Better Mental Models

Once we recognize reality bias, we can begin to build better mental models of reality. The goal of systems thinking (see Figure 3) is the continuous improvement and refinement of our mental models such that they more closely reflect the real world. The closer the mental model to reality, the more useful it is to us.

This feedback loop between mental models and reality is ever present in your daily life. Becoming more aware of how it works is a central goal of becoming a systems thinker. When you create a mental model (you are creating them all the time), you are attempting to describe, summarize, or predict—in summary, to *approximate*—something about the real world. If you're paying attention, the real world will provide feedback in the form of *information* that can: (1) help you to determine the viability of your mental model, (2) select the best mental model among a range of options, or (3) inform how you adapt your mental model.

Next, Explicate How Mental Models Are Built

The *information* we get as feedback from the real world is critically important. But what we *do* with this information—how we *structure* it—is what makes a mental model. DSRP (the cognitive code that underlies the building of all mental models) stands for making distinctions (D) and organizing systems of part-whole (S), recognizing relationships (R), and taking perspectives (P). DSRP gives us a cognitive grammar that we can use to structure any and all information. When we make mental models of the world around us (i.e., when we make meaning of information) we structure it using DSRP. Figure 4 explicates the components of a mental model.

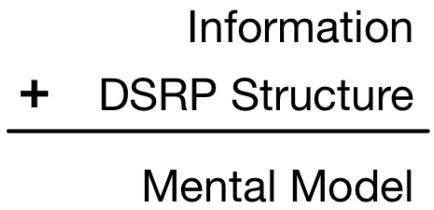

Figure 4. Mental models are formed when Information is structured by DSRP [3]

The question is not, will I use DSRP to structure my mental models. You are already and always using DSRP to structure the information around you.

Figure 6: One version of cognitive biases. See larger poster here [4]

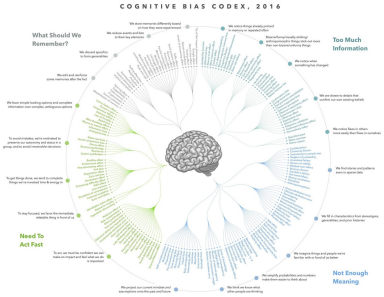

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Figure 7: Another version of cognitive biases grouped into categories. See larger poster here [5]

The question is, will you be *aware* that you are using DSRP. This awareness is called *metacognition* (or awareness of one's own thinking processes). Figure 5 illustrates the importance of being explicit about how we are doing important things like building mental models.

We can use DSRP to interrogate our mental models of the world and their degree of conformity to reality. Being ever mindful that our understanding of the world around us is an approximation can help avoid costly errors. This type of awareness of our thinking (metacognition) can make us better thinkers, communicators, decision makers, and group members.

Reality Bias and DSRP Are the Remedy for All Cognitive Biases

Avoiding reality bias involves two things. First, it involves recognizing that mental models play a role in every thing we think about the world around us. Indeed, the mental models we have lead directly to our behavior. If we think the world is a certain way, even if it is not that way, we will act upon that erroneous belief. So realizing that we experience the world *indirectly* through the lens of our mental models is the first step. Second, we must develop metacognition (an explicit awareness of the DSRP structures we are using to shape information into meaning).

In Figures 6 and 7, you'll see two versions of the many cognitive biases that have been identified. Some of these cognitive biases (like confirmation bias) are well documented by scientific studies while others are popularized in public dialogue. The good news is that when we do these two things—embrace mental models and DSRP structures—we decrease not only reality bias, but many of the other cognitive biases for which reality bias is the foundation. In other words, when we focus on reality bias and DSRP, we also avoid most of the existing, costly cognitive biases for "free."

References

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