

II Kinds of Minds

Instinct and reason are the attributes of two different entities.

—Blaise Pascal

Consider the behaviors in the following scenario. A mother instructs her son, “Michael, quickly finish digesting your breakfast and get off to school on time. Pay attention in class and don’t get distracted by that pretty girl that you are always with. Think of the long-term consequences if you let your grades slide. Also, when you go to your driving lesson, learn to parallel park.” The various behaviors involved in these instructions include digesting breakfast, leaving for school on time, ignoring the pretty girl, considering consequences of poor grades, and learning to parallel park a car. Each is interestingly different.

While digesting breakfast is a natural consequence of ingesting it, it is a very odd request to make of someone. The digestive process is not under conscious control. Unlike leaving for school on time, one cannot choose to digest or not to digest one’s breakfast. The request not to get distracted by the pretty girl is different from the request to digest breakfast. It certainly sounds like a conscious choice, but it is not clear that it is fully under one’s control to the same extent as leaving for school on time. Learning to parallel park is different still, as is the inference of the future consequences of poor grades. Only the latter clearly calls on the reasoning mind. I want to suggest that each behavior is sufficiently different that it may be appropriate to associate each with a different “kind of mind.”¹

Behaviors are organismic responses to environmental change or perturbation, where the environment can be either internal or external. Internal environments are largely “known” and predictable. External environments are largely unknown and usually unpredictable. I propose to identify and

classify “different types of behaviors” based on the answers to the following five questions:

- (1) What is the function of the behavior?
- (2) How tight is the causal coupling between stimulus and response?
- (3) What is the origin of the behavior?
- (4) What are the underlying mechanisms of the behavior?
- (5) What brain structures realize these mechanisms?

Classifying along these dimensions allows us to identify at least four distinct types of behaviors—autonomic, instinctive, associative, and rational—and correlate them with four different kinds of minds. I will not only classify behaviors (and minds) along these five dimensions but will also organize the resulting categories into a hierarchy beginning with those systems that appear earlier and are most widely available on the evolutionary tree, followed by those of more recent origin, and more narrowly available. While I may refer to the systems as “lower” and “higher” level systems, this hierarchy is understood in the context of a phylogenetic tree (see chapter 10, box 10.1), not the ladder envisioned by the metaphor of the Great Chain of Being.

Even though autonomic, instinctive, learning, and reasoning systems will be classified as distinct behaviors and mechanisms—even associated with different kinds of minds—an overarching theme of this volume is that they are not isolated systems. Evolutionarily more recent systems are always tethered to earlier systems such that they are constrained by them and can in turn modulate them to *some* extent. I will begin with the simplest, earliest evolved behaviors, and their underlying mechanisms, and continue to more complex, more narrowly available behaviors until we reach reason in chapter 6.

These four systems, or kinds of minds, will be familiar to all readers. They have been extensively studied for the past hundred or more years. The objective of this part of the volume is to provide an accessible but substantive description of each system. Some readers may find this laborious, but having a common understanding of these terms is critical for circumventing misunderstandings as we develop the model of tethered rationality. I will also point out examples of tethering or interaction between the different kinds of minds along the way, but a more substantive discussion of this issue is relegated to part IV of the volume.

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Reason and Less

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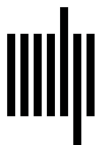
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