Humans, octopuses, bees, scrub jays, and dogs have all been shown to have rich cognitive capacities, but their minds work very differently. Understanding the variety of animal minds is crucial both to understanding the nature of the mind, and to the ethics of how we treat different animals. What are the most important factors contributing to that variety? Drawing on philosophy of mind and cognitive science, my dissertation shows that one of the most important factors is variety in animals’ cognitive relationship to time. Pace recent literature, which either misconstrues how a mind with a very primitive relationship to time could operate, or underplays either the importance or variety of sophisticated cognitive relationships to time, I show how several distinct kinds of sophistication in memory systems and ways of representing time make a fundamental difference to their possessors’ capacities for understanding the world.