Reflection Paper 9; TA: Dhyan Gandhi

In the interview, Rumelhart extensively describes his work in cognitive science and neural networks. It is particularly interesting to learn about how he used the academic environments around him and the passionate peers around him to develop his ideas. For example, at UCSD, Rumelhart was able to meet Don Norman and Peter Lindsay, where they worked on understanding the mind and transcended the fields of math and psychology by creating computer simulations, and after meeting peer Jay McClelland, McClelland built a neural model based on Rumelhart’s course and they later co wrote the seminal work PDP that was influential in future cognitive models and neural networks. This process of working with other professors and that community building a body of work that builds on past work is reminiscent of the first reading, where Gardner extensively discusses the general history and breakthroughs in the field of cognitive science. Just like one of the central themes of Rumelhart’s interview, we can see the highly collaborative nature of these early cognitive scientists who were pioneering new fields of studies, like through discussions of how von Neumann built on the original ideas of Turing, and how Wiener’s insights into information theory at MIT came from another peer at MIT in Claude Shannon. These readings create a picture that shows that the established concepts we know today, like neural networks or information theory, would likely not exist if the nexuses of scholarly thought did not exist to combine the innovative ideas of the most brilliant minds. They also both show how a large variety of fields were required to inform the body of cognitive science knowledge we have today. In the Rumelhart interview, we see how he published an interactive model of reading in *Attention and Performance* by combining his knowledge in linguistics and psychology with his prior work in mathematical models.. The Gardner reading confirms this insight as it discusses the “Key Theoretical Inputs to Cognitive Science”, detailing fields as diverse as math, cybernetics, neuroscience, information theory, and more.