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Response to *Linked*
Albert-Lazslo Barbasi

As the author grapples us into his first few chapters, he stated some prominent things that stood out to me as I have never thought of the topics he discusses in that way before. Humans as curious evolving beings tend to take apart things they do not understand in a means of making sense of how its insides work. And now “we have taken apart the universe and have no idea how to put it back together”, and we have observed that in nature doesn’t only have one way to be put back together but countless of approaches. Despite the feeling that most have regarding the believe that there is some order behind the complex systems we live in, an argument of it all being fundamentally random emerges with the random network theory in 1959. Presented by Erodos and Renyi, this theory never planned to provide a “universal theory of network formation” but it was simply motivated by their curiosity in mathematical formulas and truths rather than what they are applied to. The struggle we face as we try to put back the universe as we found it would quite be impossible to do, having so many components and existing where nature seems to play on a random cycle that we still try to make sense of.

Looking at these networks through a microscope, you will be able to distinguish the web networks create are made up of nodes and links. Take *k* as the number of links and *d* as nodes, *k^d* states that is *k* is a large digit with a small number of *d* it proves why the average number of separation between two nodes is found to be so short in most networks.

With the rise of computers, Tim Berners-Lee a programmer acknowledged of having networks amongst things and dreamed of a way where computers communicating and creating links between each other. Ten years after his dream was when the World Wide Web became public as the largest human-made network. An ever growing network thanks to what they call crawlers or robots, crawling through this network without human supervision, with the goal to search for new documents and make links. This digital network is tied to the human one, and as the network increases its amount of link, it actually causes the world to be small.

To put a number on that statement, Barabasi introduces the “six degrees of separation” concept. A concept that captures how small of a world we live in, with the average amount of 6 connections of people between any random two individuals in the world. But thinking realistically this theory cannot just work on our network nowadays without thinking how would we mimic social networks of this century. It is not simply random as was stated before, but it is not far from that idea either. The key to model real social networks is to have a clustering behavior between circles of people, but at the same time maintain the random factor by having acquaintances from outside your social circle. Only then is this theory possible, for a paper by Granovetter talks about “The Strength of weak ties”, stating that you will more likely benefit from a far acquaintance than someone from your close group.