

Evolution and ‘Bubble Logic’ versus ‘Tree Logic’

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With the goal of resolving a friend’s dilemma about resolving an apparent exponential number of ancestors that each of us has, as individuals, with the biblical view that we all start from just two – actually just one., Adam. This is, hopefully, a fun way of considering evolution in terms of bubbles.

The Dilemma

A friend of mine recently asked me if I could help him escape a logical dilemma within which he was trapped. This dilemma followed the following line of reasoning: “As individuals we each have two parents, who each have two parents, who have two parents – and ongoing as an exponential growth, continuing until the beginning of human evolution. Following this line of thinking each of us would have more trillions of ancestors than we can imagine yet biblical wisdom has us as the decedents of just two human beings, namely an Adam and an Eve,” see Figures 1 and 4.

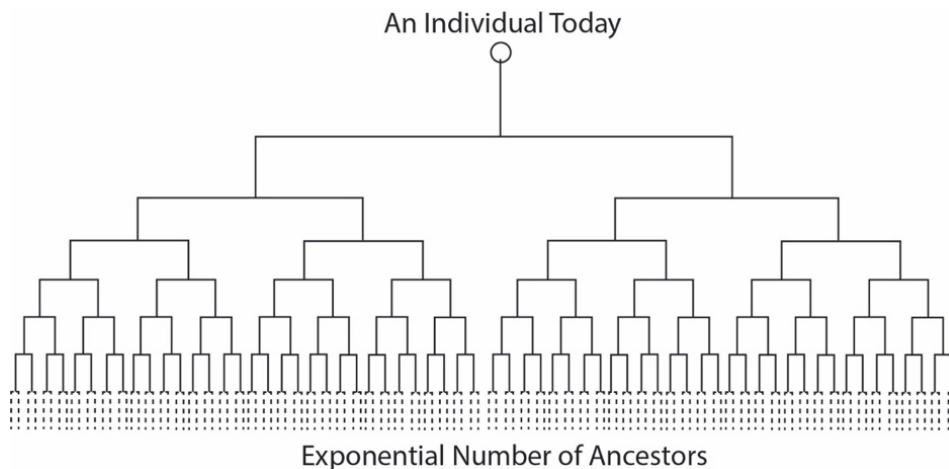


Figure 1: *Backtracking to ancestors of the past following a path of individuals*

Paths of Reason

To help my friend, my reasoning explored evolutionary rather than biblical paths:

Firstly, there was never a start with just two human beings. We could start with amoeba, but it might be simpler to start with apes and consider two processes in play where one is ‘genetic evolution’ and the other is ‘skill development.’ So, let’s envision a number of apes, scattered over a geographical area, who have developed more survivable genetic-based and skill-based traits than others. Where such traits would not necessarily be the same but would nonetheless increase survival skills. Over time apes with survival advantages of some sort would mate with each other, mostly locally but sometimes at the distant fringes of their environment, with the result that some groups would dominate other groups – where dominating groups would have all sorts of variations of genetic-based and skill-based advantage. In time high survival skill apes would dominate the full extent of their environments with some interbreeding with ‘lesser’ apes and with some ‘squeezing out’ of less advantaged apes – one way or another.

At this point we would still have many high survival ape groups with different skill and genetic advantages. As the process continued we would have types of early man evolving – where the same process of interbreeding, cross-group breeding, assimilation, or ‘squeezing-out’ continued – but we would still have variations of genetic-based and skill-based advantage.

Speeding Up Evolution

Up to this point we have considered apes and early man within relatively easy traversable distances. This part is important as the size of a group dominating its environment and its relative isolation from other groups would impact genetic-skill diversity with the likelihood that small isolated groups would have a high level of ‘negative’ genetic mutation through close interbreeding and a narrowing of skill set development. It is most likely that over the last few hundred thousand years, many population groups were isolated with little or no interaction with other population groups, limiting the possibility of their developing dominating genetic evolutionary traits and skills – unlike groups that had relatively high levels of interaction with other groups. At some point the dynamics of evolving population groups would shift more towards skill development rather than genetic evolution which seems to be where we are today. With this shift the process of development would accelerate way past the slow process of genetic evolution although, arguably, mental and manipulative developments would require certain changes to the human central nervous system, and associated behaviors, that would keep pace with the development of new skills including languages of communication and abstract thinking.

‘Ebb and Flow’ of Evolution

Given the above scenario we can consider some examples of lineage. My family’s lineage, for example, might stretch back in time through a variety of small-isolated groups, fairly large genetic-skill sharing groups, through small and isolated – and even to just two individuals that somehow escaped an isolated group that later became extinct. Where small groups would have high levels of close family interbreeding and large groups of more distant family interbreeding and therefore greater genetic diversity.

Estimates of the human population of the whole Earth over the last few 100,000 years ago are thought to have fluctuated from as low as about 15,000 to as many as half a million, but it could be much less given the challenges of ice ages and other climate changes as well as disease, wars and peculiar sacrificial customs. Arguably, population groups of under one hundred would not survive due to the limited genetic and skill-set advantages open to them as well as the possibilities of environmental and biological mischance.

If we trace our lineage back to evolving apes then we might end up with a common lineage, for all of us, of just a few hundred – but these individuals, in turn, would have a much greater number of ape ancestors – that followed a similar ebb and flow of population numbers, and interacting / non-interacting population groups, as humans.

A Bubble Model of Evolution

To create a model of the sort of genetic and skill-based ebb and flow, described above, with a ‘tree’ based branching model is possible but it would present a rather static picture of events, see Figure 4. A ‘bubble’ like model is more fun and might better portray the dynamics of human evolution and skill development. This would be a model where bubbles can grow, shrink, divide and burst – and where each bubble represents a human or ape group, see Figure 2.

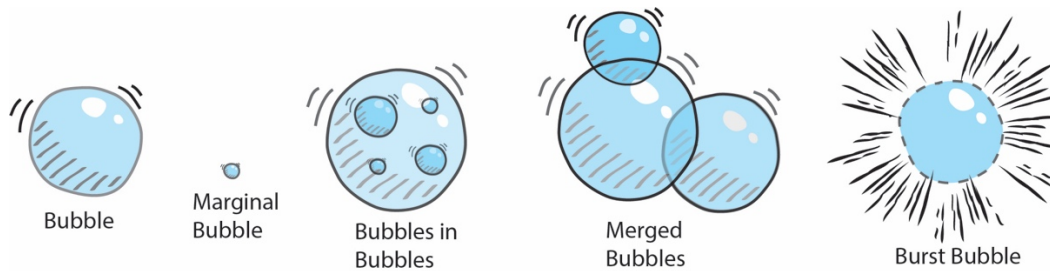


Figure 2: *The Language of Bubbles.*

To begin, then, we start with a number of ape genetic-skill bubbles, one distinct from the other. These would be bubbles arising within Africa. As the bubbles moved about some merged with others creating larger bubbles, some shrank in size, some remained floating in the air, isolated from other bubbles, and some bubbles burst. There would be no guarantee that large bubbles would always survive, they might still burst but on the other hand they might have a characteristic that results in nearby bubbles bursting. Large bubbles, or dynamically active small bubbles might also assimilate long time isolated bubbles or, by proximity, burst them. Within this bubble world there's always a number of bubbles just floating around that sometimes divide into other bubbles or merge with other bubbles or just simply burst, see Figure 3. An overriding dynamic would be dramatic fluctuations in the overall number of bubbles in existence and their size caused by the susceptibility of bubbles to hazards in their outside environment.

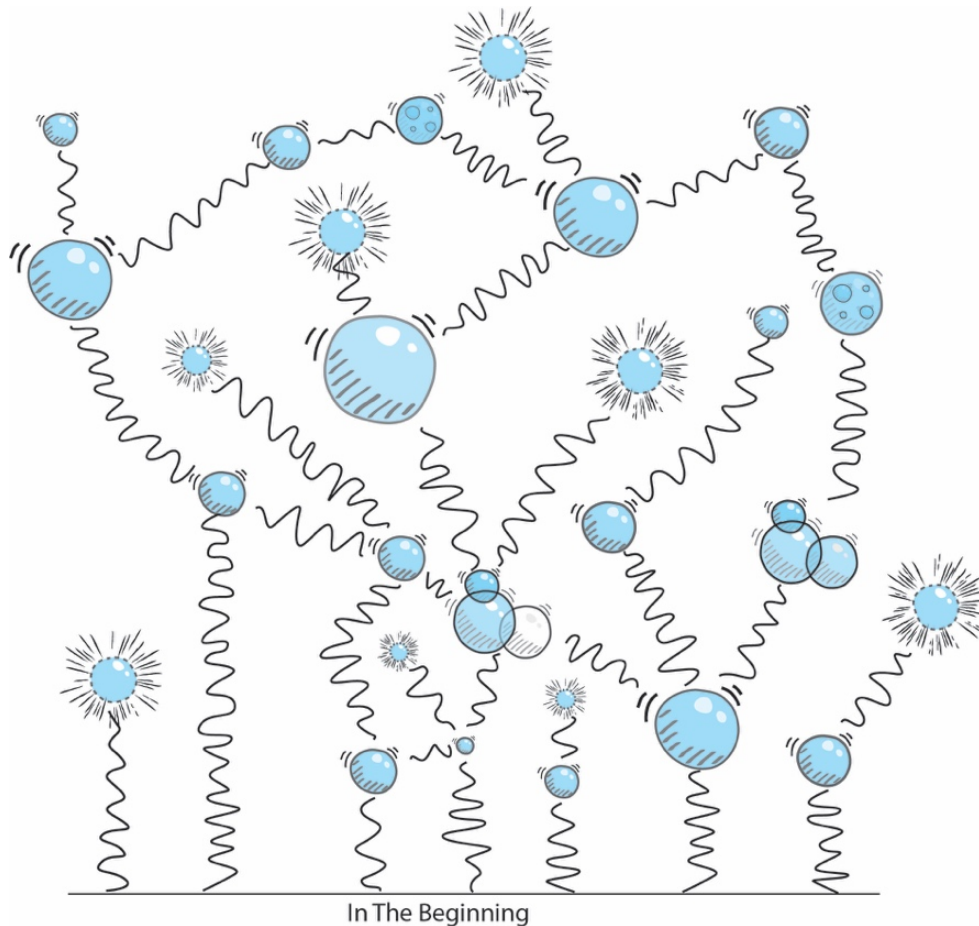


Figure 3: *Evolution in terms of bubbles.*

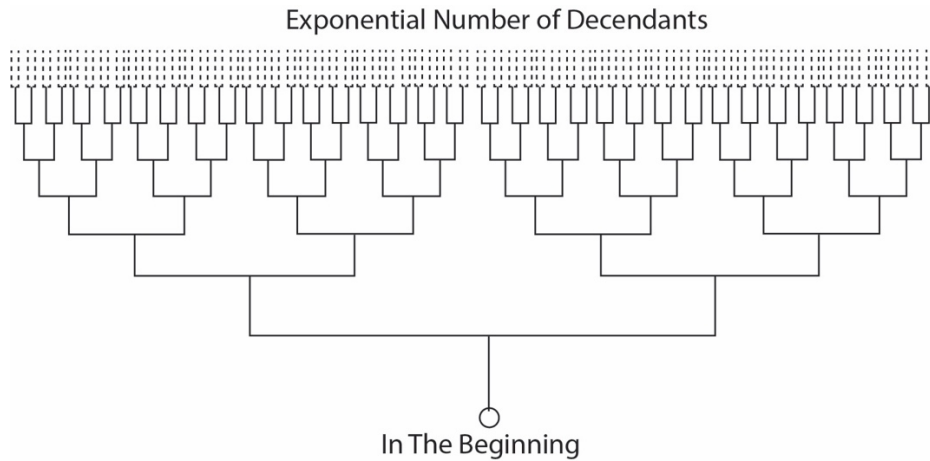


Figure 4: *Evolution following the paths of mating couples in terms of a tree diagram.*

Figure 4 shows an evolutionary tree that follows the paths of mating couples starting with Adam and then Adam and Eve and then mating couples after that. As to where partners come from, to form a mating pair, is left to the imagination but one assumes a lot of incest at the beginning.

Resolution

Not sure if my friend will accept my ‘bubble’ view of our ancestry and that it will resolve his dilemma. Possibly the ‘ebb and flow’ scenario might provide some traction as well as the possibility of being descended from both a mixed-up variety of small and big groups. Let’s hope that all of the bubbles don’t burst at some point – as without them all evidence of the human story would just disappear.