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1 Luck and Evolution

1.1 Types of Selection

The general case for all three cases of selection is the non-random survival of randomly hereditary equipment.
In artificial selection, humans choose characteristics that they desire. Thus these characteristics survive non-randomly. The reason that these characteristics came to be so good is RANDOM.
Similarly for sexual and natural selection.

1. **Artificial Selection**
   Humans (as a selecting agent) force an increase or decrease in the frequency of specific genes in the gene pool of a particular species E.g. (Domesticated) dogs were created by selecting certain characteristics of wolves (e.g. more docile) E.g. domesticated plants. Beautiful plants

2. **Sexual Selection**
   When a female of the species observes a trait they desire, they are able to choose that particular mate, and the good trait eventually gets passed down by reproduction. Examples: lions with beautiful manes, peacocks with large plumes, birds of paradise with good dancing skills.

3. **Natural Selection**
   Certain traits are more favorable in certain environments, which would lead to better odds of surviving. Those that survive can then pass down their genes, which increases the frequency of specific traits that allow for better survival. An example here would be the long necks in

giraffes, allowing them to get to leaves that other giraffes cannot reach, securing their food supply.

1.2 Slow Process of Evolution

Evolution is a slow process as it goes slowly by accumulation of mutations across many generations/across long periods of time For most species, evolution is a slow process as it takes many generations for mutations to accumulate and create something complicated, such as an eye or a wing. rare events of mutations -> takes a long period of time

1.3 Evolution by natural selection criteria (nurse 2020)

- First, they must be able to reproduce.
- Second, they must have a hereditary system, whereby information defining the characteristics of the organism is copied and inherited during their reproduction.
- Third, the hereditary system must exhibit variability, and this variability must be inherited during the reproductive process. It is this variability that natural selection operates upon. It transforms a slow and randomly generated source of variability into the apparently boundless and constantly changing range of life forms that flourish around us. Additionally, for this to work efficiently, living organisms must die. That way, the next generation, potentially containing genetic variants that give them a competitive edge, can replace them

2 Luck and Circumstance at birth

2.1 People dont rise from nothing

We do owe something to parentage and patronage. The people who stand before kings may look like they did it all by themselves. But, in face they are invariably the beneficiaries of hidden advantages and extraordinary opportunities and cultural legacies that allow them to learn and work hard and make sense of the world in ways others cannot. (gladwell, M 2008 pg 21)

2.2 The American Nightmare

The rosy American view does not reflect reality today in the united states. Along with the general stagnation at the bottom, intergenerational mobility has declined sharply in the US. Mobility is now substantially lower in the United States than it is un Europe. WIthin the OECD, the child from the bottom quintile most likely to remain stuck in the bottom quintile is from the US. (31.1 percent) (Economics for hard times, 2019) page 258

2.3 Effects of Surname on Academic success

Of the top 35 US economics departments, faculty with earlier surname initials are significantly more likely to receive tenure at top ten economics departments, are significantly more likely to become fellows of the econometric society, and to a lesser extent, are more likely to receive the Clark Medal and the Nobel prize.

2.4 The Matthew effect

It is those who are successful, in other words, who are most likely to be given the kinds of speical opportunities that lead to further success. It's the rich who get the biggest tax breaks. It's the best students who get the best teachers and most attention. And it's the biggest nine and 10 year olds who get the most coaching and practice. Success is the result of what sociologists like to call an accumulated advantage. The professional hockey players starts out a little bit bigger, and that edge in turn leads to another opportunity, which makes the initially small difference bigger still and so on and so on until the hockey player is a genuine outlier. (gladwell, M 2008 pg 21)

2.5 Relative Age phenomenon

In any elite group of hockey players, 40 percent of the players will have been born between January and March, 30 percent between April and June, 20 percent between July and September, and 10 percent between October and December (gladwell, M 2008 pg 21)
The relative age phenomenon is the skill difference within a grouping of children by calender year between children born in the earlier part of the year and later part of the year, due to cutoff dates which separate different ages At a young age, a difference in say, 10 months, could make a huge difference in physical maturity (Hockey league, outliers p21; about education, outliers p30&31) Soln: Outliers p 35? Separate leagues (two leagues for same

calender year, one first half one second half); for schools, breaking them down by month of birth (outliser, p36) Singapore parallels: Gifted Ed test

2.6 Effects of country of birth

Yes, it makes a difference which rich country I'll migrate to. It is preferable to migrate to a rich, egalitarian country e.g. Sweden which provides adequate welfare benefits to its residents (offer more benefits to the poor than the rich) . That country should have a stronger salary opportunity (after accounting for the exchange rate) as compared to my home country. Preferably a country where the citizens are not too hostile of immigrant workers and without many restrictions to entry in terms of qualifications. Countries with similar culture to the home country may be preferable to smooth the process of assimilation into the new country. Sweden has a high GST 25% which is imposed on the local to support the immigrants and that creates tension between the local and immigrants.
If you choose to go to a country with a lot of income inequality, it is unlikely you can reap most of the benefits of migration (e.g. Brazil). Citizenship Premium at the bottom is greater than at the top when poor unequal VS rich equal. Repercussions for that country is that they might attract people with low talent who are lured in by the benefits given to the people of the country.

2.7 Effects of immigration

Rich country: Assuming people in rich countries would not want low paying low skill jobs, restricting immigrants to only the qualified and the rich would result in a lack of manpower for low skilled jobs.
Poor country: The country faces a loss of talent and individuals that were the driving forces behind the country's economic growth. The other citizens in the country now have a greater burden.
The problem is that from the global perspective, this approach to migration is heavily discriminatory. To one set of "discriminations," the citizenship rent, we add another set of discriminations whereby this rent may also be enjoyed by those who were not lucky enough to have been born in a rich country but have exceptional abilities or wealth. We run the risk that such policies will result in the poor world, and I am thinking especially of Africa here, becoming even poorer as its most educated and wealthiest members leave. (Milanovic, 2016, p. 136)

2.8 Ban The Box (race)

A recent study on the impact of ban the box policies on the rate of unemployment of young black men provides a compelling demonstration of statistical discrimination. (good economics for hard times)
The Ban the Box policy substantially increased racial disparities in callbacks. White applicants to BTB-affected employers received 7 percent more calbacks than similar black applicants before BTB. After BTB, this gap grew to 43 percent.

2.9 Asian Americans Harvard discrimination (race)

Asian americans were suing harvard for discrimination, on the grounds that, in order to achieve its diversity goals, Harvard artificially limits the number of Asian American students it admits. (good economics for hard times)
Asian students systematically have higher academic and extra-curricular ratings, but lower personality ratings, and once we account for that they are no less likely to be admitted than white students. For Card, this proves there is no discrimination. Archidiacono contends that the personality rating is exactly the way Harvard discriminates against Asians. (good economics for hard times)

3 Luck and Social Mobility

3.1 Rat Race equilibrium

Definition of quality of life: educational attainment, physical and mental well-being, access to basic necessities
Rat-race equilibrium: 'mechanics of meritocratic production put additional upward pressure on elite industry, driving superordinate workers to yield ever more intense effort and ever-longer hours — more than anyone actually wants'
Elite workers today are almost expected not to have personal lives. (Meritocracy Trap, 2019, Page 190) One elite firm, concerned that its employees were working too hard, granted unlimited vacation time, this triggered a reduction in vacation actually taken.
'Happy guy in college' who 'became "a snappy ... really uncomfortable guy to be around'
Elite workers want to prove that they are hard working via staying long hours in the office, others follow so that they don't look bad in the eyes of

their bosses. Even when a company gives unlimited leaves, employees would rather take fewer leaves to prove their loyalty to the company. This leads to high stress levels and several health issues, while feeling lesser sense of fulfillment.

3.2 Meritocracies effects on social mobility

3.2.1 Against Meritocracy

- **Deaths of Despair and the Future of Capitalism:**
  The wealthy can pay for more, and higher-quality, coaching for college entrance exams and essays, as well as for diagnoses of disabilities that allow their children extra time for classwork and exams.13 (deaths & despair). Wealthy parents paid bribes to secure a place for their children in elite colleges.

- Jobs that were once opened to nongraduate are now reserved for those with a college degree. This means that the less fortunates that could not afford a college degree will have lesser jobs opportunities.

- **The Meritocracy Trap:**
  Pg 182: Rich families run the gauntlet of elite education to give their children the exceptional training and skills required to get and to do superordinate jobs, so that they might land on the right side of the meritocratic divide.

- **Elite Training Succeeds**
  The investments that rich families make in their children's human capital pay off. Children from the richest fifth of households are roughly seven times more likely than children from the poorest fifth to end up in the top quintile of the income distribution as adults, roughly nine times more likely to end up in the top quintile of the wealth distribution, and roughly twelve times more likely to end up in the top quintile of the education distribution.

  Education is a prime sorting mechanism. The median college graduate will make more money over his lifetime than 93% of workers without a high school degree and than 86% of workers with a high school degree only; and the median professional school graduate will make more money than nearly 99% of high school dropouts.

  Graduate and especially professional degrees yield a greater income premium.

- **The tyranny of merit:**
  Pg 178: This meritocratic arms race tilts the competition in the favor of the wealthy and enables the affluent parents to pass on the privilege on to their kids.

  Prosperous parents are able to give their kids a powerful boost in the bid for admission to elite colleges.

  First, my having this or that talent is not my doing but a matter of good luck and I do not merit or deserve the benefits that derive from luck.

  Second, that i live in a society that prizes the talents i happen to have is also something for which i can claim credit. This too is a matter of good fortune.

  It is a flawed assumption to consider our success and failure is solely based on our merit as this assumes that economy is a field of fair competition, untainted by privilege or prejudice.

- **Aristocracy of talent pg 6**
  There is a problem with calcification: the same family names crop up in lists of top scholarship winners and office-holders, starting with the Lee family itself.

  Conformity is more important than originality.

  It combines meritocracy with an intrusive, and somewhat fussy, authoritarianism.

3.2.2 Support Meritocracy

- **The Aristrocracy of Talent (reading)** The meritocratic idea made the modern world, sweeping aside race-and sexbased barriers to competition, building ladders of opportunity from the bottom of society to the top, and electrifying sluggish institutions with intelligence and energy. **Discrimination on the basis of race and sex is now illegal across the advanced world.** Women take up more than half of the places in most Western (and in many emerging-country) universities. Kamala Harris, a woman of Jamaican and Indian heritage, is vice-president of the United States, and may well follow Barack Obama to the Oval Office. None of that would have been possible without the meritocratic idea. (Wooldridge, 2021)

- **Reduces Race/gender descrmination**

Meritocracy succeeds because it does a better job than the alternatives of reconciling the two great tensions at the heart of modernity: between efficiency and fairness on the one hand, and between moral equality and social differentiation on the other. It screens job applicants for competence. Vaccines save our lives rather than poisoning us because highly trained scientists develop them and other highly trained scientists test and regulate them. But, at the same time, meritocracy gives everybody a chance to put their name into the sorting hat.

- **Pick the best people for the job in cases where failure is not an option**
  They demonstrate that countries that favour recruiting professional managers through open competition have higher growth rates than those that favour recruiting amateur managers through personal connections.

- **Gifted Education Program**
  The city-state is much concerned with identifying children at the very top of the ability range. All children are assessed at the age of eight or nine in maths, English and reasoning. The top 1 per cent are transferred into a Gifted Education Programme which is run in nine primary schools up to the age of twelve. They can then choose if they want to go to certain secondary schools that also offer a Gifted Programme. These selected children are given 'personalized education plans' that include extra teaching in some subjects, advanced placement in some classes and access to self-taught online courses.

- **Better standard of living, longer life expectancy**
  Two recent studies are particularly telling. Four economists at the University of Chicago's Booth School of Business have examined America's GDP growth per person in 1960–2010 in the light of the distribution of talent. They claim that roughly a fifth of that growth can be explained by the improved allocation of talent, particularly the opening of highly skilled professions to new talent pools. In 1960, 94 per cent of America's doctors and lawyers were white men. By 2010, that number had shrunk to 60 per cent.5 That makes for both a more productive and a more just society

4 Luck and Free Will

4.1 Chaos Theory & Quantum Mechanics

- **Chaos Theory**
  Behavior of complex systems cannot be accurately predicted for as it is impossible to account for the multitude of factors that affect outcomes. Thus, small changes will have cataclysmic effects on the final result. This complexity makes prediction about chaotic systems extremely difficult. However, **chaos theory is still deterministic** as the systems are hard to predict, but is not random and can thus still be defined.

- **Quantum Mechanics**
  TLDR: quantum mechanics does not support free will, as randomness does not imply free will.
  Quantum systems are inherently unpredictable. It works on a particle level, which makes it impossible to predict eventual outcomes. However, we can calculate the probability of each event happening. It seems that the window between the probabilities and the eventual outcome is perfect for free will, with agents freely deciding what the eventual outcome will be. However, the eventual outcomes in quantum mechanics are decided by randomness. And **random decisions cannot be freely-made decisions.** The quantum equations lay out many possible futures, but they deterministically chisel the likelihood of each in mathematical stone. Thus, it is still bound to the laws of physics and math.

  1. 'Until the End of Time' pg 148 and 149:
     But in quantum physics, as we have seen, the equations predict only the likelihood of how things will be at any future moment. By inserting an element of probability-chance-quantum mechanics seems to provide a modern and experimentally motivated version of the Epicurean swerve, slackening the deterministic reins.
  2. Quantum mechanics takes as input the state of the world now and produces a unique table of probabilities for the state of the world tomorrow. The quantum equations lay out many possible futures, but they deterministically chisel the likelihood of each in mathematical stone. Much like Newton, Schrodinger leaves no room for free will.
  3. Consider an electron that according to quantum mechanics has a 50% chance of being here and a 50% chance of being there. You

cannot freely pick the outcome. This attests to the outcome being random, and random outcomes are not freely willed choices. The results have a statistical regularity. A freely willed choice is not constrained, even in a statistical sense, by mathematical rules.

4.2 Free Will does not exist

We need to recognize that although the sensation of free will is real, the capacity to exert free will–the capacity for the human mind to transcend the laws that control physical progression–is not. (Greene, 2020, p.158)

- Our choices are the result of our particles coursing one way or another through our brains. Our actions are the result of our particles moving this way or that through our bodies. And all particle motion–whether in a brain, a body, or a baseball–is controlled by physics and so is fully dictated by mathematical decree. (Greene, 2020, p.147)

- A freely willed choice is not constrained, even in a statistical sense, by mathematical rules. But as the evidence demonstrates in this instance and all others too, the math does rule. So although the passage from quantum probabilities to experiential certainties remains puzzling, it is clear that free will is not part of the process. To be free requires that we are not marionettes whose strings are pulled by physical law. (Greene, 2020, p.149)

- might free will be lurking in the answer? Unfortunately, no. Consider an electron that according to quantum mechanics has a 50 percent chance of being here and a 50 percent chance of being there. Can you freely pick the outcome-here or there–that an observation of its position will reveal? You can't. (Greene, 2020, p.149)

- To sum up: We are physical beings made of large collections of particles governed by nature's laws. Everything we do and everything we think amounts to motions of those particles. Our choices seem free because we do not witness nature's laws acting in their most fundamental guise; (Greene, 2020, p.150)

5 Luck and Causality

5.1 Fooled by Randomness, Taleb prologue

- There is one world in which I believe the habit of mistaking luck for

skill is most prevalent, and most conspicuous and that is the world of markets.

- Frequently, these delusions are intentional and deserve to bear the name charlatanism
- We are faulty, and there is no need to bother trying to correct our flaws.

5.2 The Drunkards Walk

5.2.1 Self Induced Moving Tables

Faraday concluded, as the doctors had, that the sitters were unconsciously pulling and pushing the table. The movement probably began as random fidgeting. Then at some point the sitters perceived in the randomness a pattern. Human perception, Faraday recognised, is not a direct consequence of reality but rather an act of imagination. Perception requires imagination because the data people encounter in their lives are never complete and always equivocal. (The drunkards walk page 170)

5.2.2 Confirmation Bias

- Instead of searching for ways to prove our ideas wrong, we usually attempt to prove them correct. Phychologists call this the **confirmation bias** (the drunkards walk page 189)
- The confirmation bias has many unfortunate consequence in the real world. When a teacher initially believes that one student is smarter than another, he selectively focuses on evidence that tends to confirm the hypothesis. (the drunkards walk page 190)
- When an employer interviews a prospective candidate, the employer typically forms a quick first impression and spends the rest of the interview seeking information that supports it. (the drunkards walk page 190)
- When counselors in clinical settings are adviced ahead of time that the interviewee is combative, they tend to conclude that he is even if the interviewee is no more combative than the average person. (the drunkards walk page 190)

- And when people interpret the behavior of someone who is a member of a minority, they interpret it in the context of preconceived stereotypes. (the drunkards walk page 190)

- The human brain has evolved to be very efficient at pattern recognition, but as the confirmation bias shows, we are focused on finding and confirming patterns rather than minimizing our false conclusions.(the drunkards walk page 190)

5.3 The black swan, Taleb

5.3.1 The Anthropic Bias

- It is often said that the world seems to have been built to the specifications that would make our existence possible. According to such an argument, it could not come from luck. (118)

- A successful person will try to convince you that his achievements could not possibly be accidental. Just as a gambler who wins at roulette seven times in a row would explain to you that the odds against such a streak are one in several million. But if you take into account the quantity of gamblers out there, and the number of gambling sessions, then it becomes obvious that such strokes of luck are bound to happen. (119)

5.3.2 The cosmetic because

tldr: not everything has to be explained.

- We are here because, the Casanova-style, the rosy scenario played out, and if it seems to hard to understand it because we are too brainwashed by notions of causality and we think that it is smarter to say **because** than to accept **randomness** (120)

- My biggest problem with the educational system lies precisely in that it forces students to squeeze explanations out of subject matters and shames them for withholding judgement, for uttering the **I dont know** (120)

- One cannot read that much into the process, and should learn instead to invoke soem measure of randomness. Randomness in practice, is what we don't know, to invoke randomness is to plead ignorance.

- Have the **integrity** to deliver your **because** very sparingly, try to limit it to situations where the **because** is derived from experiments, not backward looking history.

6 Luck and the marketplace

6.1 Scalability

6.1.1 Some jobs are more scalable than others

- Some professions, such as dentists, conslutants, or massage professionals cannot be scaled. There is a cap on the number of patients or clients you can see in a given period of time. If you open a fancy restaurant, you will at best steadily fill up a room. (The black swan pg 27)

- If you are an idea person, you do not have to work hard, only think intensely. You do the same work whether you produce a hundred units or a thousand. In quant trading, the same amount of work is involved in buying a hundred shares as in buying a hundred thousand, or even a million. (The black swan pg 28)

- Nike, Dell and Boeing can get paid for just thinking, organizing and leveraging their know how and ideas while subcontracted factories in developing countries do the grunt work and engineers in cultured and mathematical states od the noncreative technical grind. (the black swan page 31

6.2 Mediocristan

- In Meiocristan, nothing exciting happens.

- Particular events dont contribute much individually, only collectively. When your sample is large, no single instance will significantly change the aggregate or the total. (the black swan page 32)

- matters that belong to mediocristan: height, wweight, calorie comsumption, income for a baker, a small restaurant owner etc. (the black swan, page 35)

6.3 Extremistan

- In extremistan, extreme events happen and they can dominate a phenomenon.
- such extreme and powerful events that have an overwhelming impact when they occur, are called **black swan events**
- In extremistan, inequalities are such that one single observation can disproportionately impact the aggregate, or the total. (the black swan, page 33)
- Almost all social matters are from extremistan. It is hard to kill many people if you need to slaughter them one at a time, Today, with tools of mass destruction, all it takes is a button, a nutcase, or a small error to wipe out the planet. (the black swan, page 34)
- Matters that belong to extremistan: wealth, income, book citations per author, deaths in war, planet size etc. (the black swan, page 33)

6.4 Winner takes it all effect

- Inequality comes from a tournament effect: Someone who is marginally better can easily win the entire pot, leaving others with nothing. Using an argument from chapter 3, people pefer to pay 10.99 for a recording featuring horowiz to 9.99 for a struggling pianist. So it looks like a tournament, where the winner grabs the whole thing and he does not have to win by much. (the black swan page 216)
- Random outcomes, or an arbitrary or an arbitrary situation, can also explain success, and provide the initial push that leads to a winner-take it all result. A person can get slightly ahead for entirely random reasons; because we like to imitate one another, we will flock to him. The world of contagion is so underestimated. (the black swan page 216)

6.5 The long tail

- The long tail imiplies that the small guys, collectively, should control a large segment of culture and commerce, thanks to the niches and subspecialities that can now survive thanks to the internet. But strangely, it can also imply a large measure of inequality; a large base of small guys and va very small number of supergiants, together representing a

share of the worlds culture. With some of the small guys, on occasion, rising to knock out the winners. (the black swan page 224)

- The long tail's contribution is not yet numerical. It is still confined to the web and its small scale online commerce. But consider how the long tail could affect the future of culture, information and political life. It could free us from the dominant policial parties, from the academic system, from the clusters of the press- anything that is currently in the hands of ossified, conceited, and self-serving authority. The long tail will help foster cognitive diversity. (the black swan page 224)

- The long tail is a by-product of extremistan that makes it some what less unfair. The worldis made no less unfair for the little guy, but now becomes exremely unfair for the big man. Nobody is truly established. The little guy is very subversive. (the black swan page 225)

7 Harnessing luck (collective financial)

7.1 Global Tax on capital (thomas piketty) to resolve inequality within countries

tldr: a way of solving global inequality by tranfering wealth from the rich to the poor

- A global tax on capital is a utopian idea. To achieve this goal, they would have to establish a tax schedule applicable to all wealth around the world and then decide how to apportion the revenues. (page 515)

- A global tax on capital would require a very high and no doubt unrealistic level of international cooperation. (page 515)

- Protectionism and capital controls are actually unsatisfactory substitues for the ideal form of regulation, which is a global tax on capital- a solution that has the merit of preserving economic openness while effectively regulating the global economy and justly distributing the benefits among and within nations (page 516)

- **for the rich** For the wealthiest people on the planet, the tax would thus be based on indiviual net worth. (page 517)

- **for the rest of us** Taxable wealth would be determined by the market value of all financial assets (including bank deposits, stocks, bonds,

partnerships and other forms of participation in listed and unlisted forms.) and non financial assets, net of debt. (page 517)

- **drawbacks:** One drawback of these taxes is that they are based solely on realy property (financial assets are ignored,) and property is taxed at its market value regarless of debt, so that a heavily indebted person is taxed in the same way as a person with no debt. (page 517)

7.2 Curb inequality in education (markovits)

tldr: The meritocratic inheritance is at present entirely exempted form the estate taxes that normally apply to traditional bequests: the massive investments that rich parents make in their childrens education are simply not included in their estates. Moreover, private schools and colleges are taxed as if they were charities, devoted th the public interest: alumni donations are tax-deductible, and schools and collegs pay no taxes on income from their endowments. (page 276)
The meritocratic inheritance, for its part, transfers roughly $ 10 million untaxed to each rich kid.

- First, private schools and universities should lose their tax-exempt status unless they draw at least half of their students from families in the bottom-two thirds of the income distribution. (page 277)

- And second, schools should be encouraged to meet this requirement by expanding enrollments (page 277)

- The Ivy league could met the condition for retaining not-for profit status by **doubling enrollments** (drawing new students mostly from outside the elite) and still spend about as much per student as it did in 2000. Colleges generally could increase their enrollments by half and still spend roughly as much perstudent as they did in 1970. And private schools could double their enrollments and stil have better student/ teacher ratios than their private counterparts. Public funds paid to subsidize additional students woudl lend further support to already manageable growth. (page 278)