## **Framing**

#### **Pleasure and pain are intrinsically valuable and disvalueable – everything else regresses. Evolutionary knowledge is reliable – broad consensus and robust neuroscience prove.**

**Blum et al. 18**

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**Pleasure** is not only one of the three primary reward functions but it also **defines reward.** As homeostasis explains the functions of only a limited number of rewards, the principal reason why particular stimuli, objects, events, situations, and activities are rewarding may be due to pleasure. This applies first of all to sex and to the primary homeostatic rewards of food and liquid and extends to money, taste, beauty, social encounters and nonmaterial, internally set, and intrinsic rewards. Pleasure, as the primary effect of rewards, drives the prime reward functions of learning, approach behavior, and decision making and provides the **basis for hedonic theories** of reward function. We are attracted by most rewards and exert intense efforts to obtain them, just because they are enjoyable [10]. Pleasure is a passive reaction that derives from the experience or prediction of reward and may lead to a long-lasting state of happiness. The word happiness is difficult to define. In fact, just obtaining physical pleasure may not be enough. One key to happiness involves a network of good friends. However, it is not obvious how the higher forms of satisfaction and pleasure are related to an ice cream cone, or to your team winning a sporting event. Recent multidisciplinary research, using both humans and detailed invasive brain analysis of animals has discovered some critical ways that the brain processes pleasure [14]. Pleasure as a hallmark of reward is sufficient for defining a reward, but it may not be necessary. A reward may generate positive learning and approach behavior simply because it contains substances that are essential for body function. When we are hungry, we may eat bad and unpleasant meals. A monkey who receives hundreds of small drops of water every morning in the laboratory is unlikely to feel a rush of pleasure every time it gets the 0.1 ml. Nevertheless, with these precautions in mind, we may define any stimulus, object, event, activity, or situation that has the potential to produce pleasure as a reward. In the context of reward deficiency or for disorders of addiction, homeostasis pursues pharmacological treatments: drugs to treat drug addiction, obesity, and other compulsive behaviors. The theory of allostasis suggests broader approaches - such as re-expanding the range of possible pleasures and providing opportunities to expend effort in their pursuit. [15]. It is noteworthy, the first animal studies eliciting approach behavior by electrical brain stimulation interpreted their findings as a discovery of the brain’s pleasure centers [16] which were later partly associated with midbrain dopamine neurons [17–19] despite the notorious difficulties of identifying emotions in animals. Evolutionary theories of pleasure: The love connection BO:D Charles Darwin and other biological scientists that have examined the biological evolution and its basic principles found various mechanisms that steer behavior and biological development. Besides their theory on natural selection, it was particularly the sexual selection process that gained significance in the latter context over the last century, especially when it comes to the question of what makes us “what we are,” i.e., human. However, the capacity to sexually select and evolve is not at all a human accomplishment alone or a sign of our uniqueness; yet, we humans, as it seems, are ingenious in fooling ourselves and others–when we are in love or desperately search for it. It is well established that modern biological theory conjectures that **organisms are** the **result of evolutionary competition.** In fact, Richard Dawkins stresses gene survival and propagation as the basic mechanism of life [20]. Only genes that lead to the fittest phenotype will make it. It is noteworthy that the phenotype is selected based on behavior that maximizes gene propagation. To do so, the phenotype must survive and generate offspring, and be better at it than its competitors. Thus, the ultimate, distal function of rewards is to increase evolutionary fitness by ensuring the survival of the organism and reproduction. It is agreed that learning, approach, economic decisions, and positive emotions are the proximal functions through which phenotypes obtain other necessary nutrients for survival, mating, and care for offspring. Behavioral reward functions have evolved to help individuals to survive and propagate their genes. Apparently, people need to live well and long enough to reproduce. Most would agree that homo-sapiens do so by ingesting the substances that make their bodies function properly. For this reason, foods and drinks are rewards. Additional rewards, including those used for economic exchanges, ensure sufficient palatable food and drink supply. Mating and gene propagation is supported by powerful sexual attraction. Additional properties, like body form, augment the chance to mate and nourish and defend offspring and are therefore also rewards. Care for offspring until they can reproduce themselves helps gene propagation and is rewarding; otherwise, many believe mating is useless. According to David E Comings, as any small edge will ultimately result in evolutionary advantage [21], additional reward mechanisms like novelty seeking and exploration widen the spectrum of available rewards and thus enhance the chance for survival, reproduction, and ultimate gene propagation. These functions may help us to obtain the benefits of distant rewards that are determined by our own interests and not immediately available in the environment. Thus the distal reward function in gene propagation and evolutionary fitness defines the proximal reward functions that we see in everyday behavior. That is why foods, drinks, mates, and offspring are rewarding. There have been theories linking pleasure as a required component of health benefits salutogenesis, (salugenesis). In essence, under these terms, pleasure is described as a state or feeling of happiness and satisfaction resulting from an experience that one enjoys. Regarding pleasure, it is a double-edged sword, on the one hand, it promotes positive feelings (like mindfulness) and even better cognition, possibly through the release of dopamine [22]. But on the other hand, pleasure simultaneously encourages addiction and other negative behaviors, i.e., motivational toxicity. It is a complex neurobiological phenomenon, relying on reward circuitry or limbic activity. It is important to realize that through the “Brain Reward Cascade” (BRC) endorphin and endogenous morphinergic mechanisms may play a role [23]. While natural rewards are essential for survival and appetitive motivation leading to beneficial biological behaviors like eating, sex, and reproduction, crucial social interactions seem to further facilitate the positive effects exerted by pleasurable experiences. Indeed, experimentation with addictive drugs is capable of directly acting on reward pathways and causing deterioration of these systems promoting hypodopaminergia [24]. Most would agree that pleasurable activities can stimulate personal growth and may help to induce healthy behavioral changes, including stress management [25]. The work of Esch and Stefano [26] concerning the link between compassion and love implicate the brain reward system, and pleasure induction suggests that social contact in general, i.e., love, attachment, and compassion, can be highly effective in stress reduction, survival, and overall health. Understanding the role of neurotransmission and pleasurable states both positive and negative have been adequately studied over many decades [26–37], but comparative anatomical and neurobiological function between animals and homo sapiens appear to be required and seem to be in an infancy stage. Finding happiness is different between apes and humans As stated earlier in this expert opinion one key to happiness involves a network of good friends [38]. However, it is not entirely clear exactly how the higher forms of satisfaction and pleasure are related to a sugar rush, winning a sports event or even sky diving, all of which augment dopamine release at the reward brain site. Recent multidisciplinary research, using both humans and detailed invasive brain analysis of animals has discovered some critical ways that the brain processes pleasure. Remarkably, there are pathways for ordinary liking and pleasure, which are limited in scope as described above in this commentary. However, there are **many brain regions**, often termed hot and cold spots, that significantly **modulate** (increase or decrease) our **pleasure or** even **produce the opposite** of pleasure— that is disgust and fear [39]. One specific region of the nucleus accumbens is organized like a computer keyboard, with particular stimulus triggers in rows— producing an increase and decrease of pleasure and disgust. Moreover, the cortex has unique roles in the cognitive evaluation of our feelings of pleasure [40]. Importantly, the interplay of these multiple triggers and the higher brain centers in the prefrontal cortex are very intricate and are just being uncovered. Desire and reward centers It is surprising that many different sources of pleasure activate the same circuits between the mesocorticolimbic regions (Figure 1). Reward and desire are two aspects pleasure induction and have a very widespread, large circuit. Some part of this circuit distinguishes between desire and dread. The so-called pleasure circuitry called “REWARD” involves a well-known dopamine pathway in the mesolimbic system that can influence both pleasure and motivation. In simplest terms, the well-established mesolimbic system is a dopamine circuit for reward. It starts in the ventral tegmental area (VTA) of the midbrain and travels to the nucleus accumbens (Figure 2). It is the cornerstone target to all addictions. The VTA is encompassed with neurons using glutamate, GABA, and dopamine. The nucleus accumbens (NAc) is located within the ventral striatum and is divided into two sub-regions—the motor and limbic regions associated with its core and shell, respectively. The NAc has spiny neurons that receive dopamine from the VTA and glutamate (a dopamine driver) from the hippocampus, amygdala and medial prefrontal cortex. Subsequently, the NAc projects GABA signals to an area termed the ventral pallidum (VP). The region is a relay station in the limbic loop of the basal ganglia, critical for motivation, behavior, emotions and the “Feel Good” response. This defined system of the brain is involved in all addictions –substance, and non –substance related. In 1995, our laboratory coined the term “Reward Deficiency Syndrome” (RDS) to describe genetic and epigenetic induced hypodopaminergia in the “Brain Reward Cascade” that contribute to addiction and compulsive behaviors [3,6,41]. Furthermore, ordinary “liking” of something, or pure pleasure, is represented by small regions mainly in the limbic system (old reptilian part of the brain). These may be part of larger neural circuits. In Latin, hedus is the term for “sweet”; and in Greek, hodone is the term for “pleasure.” Thus, the word Hedonic is now referring to various subcomponents of pleasure: some associated with purely sensory and others with more complex emotions involving morals, aesthetics, and social interactions. The capacity to have pleasure is part of being healthy and may even extend life, especially if linked to optimism as a dopaminergic response [42]. Psychiatric illness often includes symptoms of an abnormal inability to experience pleasure, referred to as anhedonia. A negative feeling state is called dysphoria, which can consist of many emotions such as pain, depression, anxiety, fear, and disgust. Previously many scientists used animal research to uncover the complex mechanisms of pleasure, liking, motivation and even emotions like panic and fear, as discussed above [43]. However, as a significant amount of related research about the specific brain regions of pleasure/reward circuitry has been derived from invasive studies of animals, these cannot be directly compared with subjective states experienced by humans. In an attempt to resolve the controversy regarding the causal contributions of mesolimbic dopamine systems to reward, we have previously evaluated the three-main competing explanatory categories: “liking,” “learning,” and “wanting” [3]. That is, dopamine may mediate (a) liking: the hedonic impact of reward, (b) learning: learned predictions about rewarding effects, or (c) wanting: the pursuit of rewards by attributing incentive salience to reward-related stimuli [44]. We have evaluated these hypotheses, especially as they relate to the RDS, and we find that the incentive salience or “wanting” hypothesis of dopaminergic functioning is supported by a majority of the scientific evidence. Various neuroimaging studies have shown that anticipated behaviors such as sex and gaming, delicious foods and drugs of abuse all affect brain regions associated with reward networks, and may not be unidirectional. Drugs of abuse enhance dopamine signaling which sensitizes mesolimbic brain mechanisms that apparently evolved explicitly to attribute incentive salience to various rewards [45]. Addictive substances are voluntarily self-administered, and they enhance (directly or indirectly) dopaminergic synaptic function in the NAc. This activation of the brain reward networks (producing the ecstatic “high” that users seek). Although these circuits were initially thought to encode a set point of hedonic tone, it is now being considered to be far more complicated in function, also encoding attention, reward expectancy, disconfirmation of reward expectancy, and incentive motivation [46]. The argument about addiction as a disease may be confused with a predisposition to substance and nonsubstance rewards relative to the extreme effect of drugs of abuse on brain neurochemistry. The former sets up an individual to be at high risk through both genetic polymorphisms in reward genes as well as harmful epigenetic insult. Some Psychologists, even with all the data, still infer that addiction is not a disease [47]. Elevated stress levels, together with polymorphisms (genetic variations) of various dopaminergic genes and the genes related to other neurotransmitters (and their genetic variants), and may have an additive effect on vulnerability to various addictions [48]. In this regard, Vanyukov, et al. [48] suggested based on review that whereas the gateway hypothesis does not specify mechanistic connections between “stages,” and does not extend to the risks for addictions the concept of common liability to addictions may be more parsimonious. The latter theory is grounded in genetic theory and supported by data identifying common sources of variation in the risk for specific addictions (e.g., RDS). This commonality has identifiable neurobiological substrate and plausible evolutionary explanations. Over many years the controversy of dopamine involvement in especially “pleasure” has led to confusion concerning separating motivation from actual pleasure (wanting versus liking) [49]. We take the position that animal studies cannot provide real clinical information as described by self-reports in humans. As mentioned earlier and in the abstract, on November 23rd, 2017, evidence for our concerns was discovered [50] In essence, although nonhuman primate brains are similar to our own, the disparity between other primates and those of human cognitive abilities tells us that surface similarity is not the whole story. Sousa et al. [50] small case found various differentially expressed genes, to associate with pleasure related systems. Furthermore, the dopaminergic interneurons located in the human neocortex were absent from the neocortex of nonhuman African apes. Such differences in neuronal transcriptional programs may underlie a variety of neurodevelopmental disorders. In simpler terms, the system controls the production of dopamine, a chemical messenger that plays a significant role in pleasure and rewards. The senior author, Dr. Nenad Sestan from Yale, stated: “Humans have evolved a dopamine system that is different than the one in chimpanzees.” This may explain why the behavior of humans is so unique from that of non-human primates, even though our brains are so surprisingly similar, Sestan said: “It might also shed light on why people are vulnerable to mental disorders such as autism (possibly even addiction).” Remarkably, this research finding emerged from an extensive, multicenter collaboration to compare the brains across several species. These researchers examined 247 specimens of neural tissue from six humans, five chimpanzees, and five macaque monkeys. Moreover, these investigators analyzed which genes were turned on or off in 16 regions of the brain. While the differences among species were subtle, **there was** a **remarkable contrast in** the **neocortices**, specifically in an area of the brain that is much more developed in humans than in chimpanzees. In fact, these researchers found that a gene called tyrosine hydroxylase (TH) for the enzyme, responsible for the production of dopamine, was expressed in the neocortex of humans, but not chimpanzees. As discussed earlier, dopamine is best known for its essential role within the brain’s reward system; the very system that responds to everything from sex, to gambling, to food, and to addictive drugs. However, dopamine also assists in regulating emotional responses, memory, and movement. Notably, abnormal dopamine levels have been linked to disorders including Parkinson’s, schizophrenia and spectrum disorders such as autism and addiction or RDS. Nora Volkow, the director of NIDA, pointed out that one alluring possibility is that the neurotransmitter dopamine plays a substantial role in humans’ ability to pursue various rewards that are perhaps months or even years away in the future. This same idea has been suggested by Dr. Robert Sapolsky, a professor of biology and neurology at Stanford University. Dr. Sapolsky cited evidence that dopamine levels rise dramatically in humans when we anticipate potential rewards that are uncertain and even far off in our futures, such as retirement or even the possible alterlife. This may explain what often motivates people to work for things that have no apparent short-term benefit [51]. In similar work, Volkow and Bale [52] proposed a model in which dopamine can favor NOW processes through phasic signaling in reward circuits or LATER processes through tonic signaling in control circuits. Specifically, they suggest that through its modulation of the orbitofrontal cortex, which processes salience attribution, dopamine also enables shilting from NOW to LATER, while its modulation of the insula, which processes interoceptive information, influences the probability of selecting NOW versus LATER actions based on an individual’s physiological state. This hypothesis further supports the concept that disruptions along these circuits contribute to diverse pathologies, including obesity and addiction or RDS.

#### **Thus, the standard is maximizing expected well-being or act hedonistic util. Prefer additionally –**

#### **1] Outweighs – A] Predictability – most authors assume util when discussing the cost/benefit tradeoffs of policy B] topic ed – other frameworks don’t engage with key questions of implemented policy impacts – that’s key, b/c we only have 2 months for this topic. C] TJFs first**

#### **2] Death is bad and outweighs – a) agents can’t act if they fear for their bodily security which constrains every ethical theory, b) it destroys the subject itself –**

#### **3] Actor spec—governments must use util because they don’t have intentions and are constantly dealing with tradeoffs—outweighs since different agents have different obligations—takes out calc indicts since they are empirically denied.**

### **Consequences don’t fail-**

1]

## **2- DA**

#### **Innovation is at a high in the status quo**

**Ramalingam & Prabhu 20** [Ben Ramalingam- Overseas Development Institute, United Kingdom. Jaideep Prabhu University of Cambridge, United Kingdom. “Innovation, development and COVID-19: Challenges, opportunities and ways forward.” OECD. 1 December 2020. Link: <https://www.oecd.org/coronavirus/policy-responses/innovation-development-and-covid-19-challenges-opportunities-and-ways-forward-0c976158/>] JV

Coronavirus (COVID-19) innovation: what is happening? A global perspective At the same time as causing a huge impact on health and livelihoods around the world, COVID-19 has a created fertile breeding ground for novel solutions and approaches (OECD Observatory of Public Sector Innovation, n.d.[2]). The most comprehensive survey of global research and development (R&D) funding commitments for COVID-19, undertaken by the US-based Policy Cures programme, shows that investment in health-related innovation has been unprecedented (Policy Cures, 2020[3]). The scale of innovation resources mobilised globally is remarkable: USD 9 billion in seven months. By comparison, the total global funding disbursed for Ebola R&D between 2014 and 2018 was USD1.9 billion. The nature of the innovation processes that have been deployed is also notable. In the six months since the outbreak began, the US Food and Drug Administration (FDA) has approved almost 100 COVID-19 tests, in contrast to the three months the FDA took to approve the first Ebola test during the 2014 West Africa outbreak. The first COVID-19 vaccine entered into human trials within a record-breaking 69 days of identifying the causative agent of the outbreak[1](https://www.oecd.org/coronavirus/policy-responses/innovation-development-and-covid-19-challenges-opportunities-and-ways-forward-0c976158/#endnotea0z2) – a remarkable achievement, considering that it took 25 months for the first vaccine to reach the human trial stage during the previous global coronavirus outbreak (SARS in 2002–04).

#### **Medical innovation is crucial to prevent pandemics and mitigate economic harms during shut downs**

**Mulligan 21** [Casey B. Mulligan– American economist and author. He is a Professor in Economics at the University of Chicago. “Economic activity and the value of medical innovation during a pandemic” Cambridge University Press. 9 June 2021. Link: <https://www.cambridge.org/core/journals/journal-of-benefit-cost-analysis/article/economic-activity-and-the-value-of-medical-innovation-during-a-pandemic/864F8042F794D4417E64C643999C9280>] JV

Medical innovation can reduce the duration and severity of pandemics. In doing so, innovation reduces the duration and severity of the direct health costs as well as the costs of economic shutdowns intended to mitigate the health costs. As long as it remains a major barrier to medical innovation, regulation will unnecessarily add to the economic and health costs of the current pandemic (Peltzman, 1973; Philipson & Sun, 2008). Innovation is not finished when scientists discover a new medicine, device, or technique and demonstrate its safety. Pandemic medicines and equipment need to be manufactured and distributed on a massive scale. Personnel need to be trained to administer new treatments. These processes can be slowed by regulatory barriers ranging from federal inspections of facilities manufacturing drugs and devices to state occupational licensure. Although not new, disease testing and contact tracing are essential techniques that are scalable in principle, but early in the pandemic were unavailable in the USA in more than small quantities. Regulatory barriers slow both the manufacturing of these devices and techniques as well as the development of more scalable methods for distributing them.

#### **The risks associated with creating new drugs means that patents are key to biopharmaceutical innovation**

**Cockburn & Long 15 [**Iain Cockburn, Richard C. Shipley Professor of Management. Genia Long, senior advisor and part of analysis group. “The importance of patents to innovation: updates cross-industry comparison with biopharmaceuticals.” Taylor & Francis online, Volume 25, Issue 7, 2015. Published online: 30 April 2015. Link: <https://www.tandfonline.com/doi/full/10.1517/13543776.2015.1040762>] JV

Due to distinctive economic characteristics, patents and regulatory exclusivity have long been considered essential to prescription drug development. These characteristics include the costly, lengthy, and risky nature of innovative research and development (R&D) and the much lower investment required for generic drugs. Because of this disparity, without patent protection and regulatory exclusivity, particularly in the USA, innovators would be unlikely to make the substantial investments required to bring new drugs to market. Whereas drug development is global, patent law and regulation are country-specific. In the USA, regulatory exclusivity operates in parallel with patents, defining when generics or biosimilars may not submit abbreviated applications and/or enter the market. Generic imitation may require several million dollars, whereas the cost to bring a single FDA-approved drug to market (including the cost of failed attempts) has been estimated at $1.4 billion in out-of-pocket costs and $2.6 billion including the cost of capital [[1,2]](https://www.tandfonline.com/doi/full/10.1517/13543776.2015.1040762). New drug R&D requires more than a decade, including pre-clinical testing, clinical trials, and US regulatory approval [[1,2]](https://www.tandfonline.com/doi/full/10.1517/13543776.2015.1040762). In comparison, clinical testing is not required for generics; manufacturers need only demonstrate bioequivalence to an already-approved drug. Risk is also high; the vast majority of candidates are eliminated, most before clinical testing. For those that begin clinical testing, the probability of proceeding to approval averages only 12% [[2,3]](https://www.tandfonline.com/doi/full/10.1517/13543776.2015.1040762). Therefore, R&D must be funded by a few successful, on-market medicines [[4]](https://www.tandfonline.com/doi/full/10.1517/13543776.2015.1040762). Generally, in the USA, once patent protection and any 180-day generic exclusivity end, multiple generics launch, and generic share increases rapidly. For all new molecular entities experiencing first generic entry in 2011–12, the average brand’s unit share of molecule sales declined to 16% 12 months after generic entry, versus 44% in 1999–00 [[5]](https://www.tandfonline.com/doi/full/10.1517/13543776.2015.1040762). In 2013, generics represented 86% of all US prescriptions [[6]](https://www.tandfonline.com/doi/full/10.1517/13543776.2015.1040762). In addition to distinctive R&D and market competition economic characteristics, biopharmaceuticals are also distinguished from other industries by a large gap between the statutory patent term (20 years from the effective patent filing date) and the effective patent term (years remaining at launch), even after any patent term restoration and additional regulatory exclusivity (e.g., for pediatric studies). The average time between brand launch and first generic sale for drugs experiencing initial generic entry in 2011–12 was 12.6 years for drugs with sales greater than $100 million (in 2008 dollars) in the year prior to generic entry, and 12.9 years overall [[5]](https://www.tandfonline.com/doi/full/10.1517/13543776.2015.1040762). In contrast, assuming < 3 years for the US Patent and Trademark Office to examine and approve a patent application (overall average of 29 months for FY2013), the remaining duration (assuming 20 years from the effective patent filing date) would be > 17 years in other industries [[7]](https://www.tandfonline.com/doi/full/10.1517/13543776.2015.1040762).

#### **Pharma collapses without strong IP protections**

**Buckland 17** - Danny Buckland (award-winning journalist who writes about health, general features and news, shortlisted for the prestigious Mind Media Awards for his work covering mental health issues), April 26, 2017, “Patents are lifeblood of pharmas”, https://www.raconteur.net/legal/intellectual-property/patents-are-lifeblood-of-pharmas/ WJ

**Pharmaceutical companies are staffed by ranks of attorneys, and the intellectual property (IP) specialist is now a pivotal position in the research and development (R&D) cycle that keeps a company profitable** and new drugs flowing to patients.

**Tighter regulatory frameworks** and even tighter purse strings controlled by healthcare systems **are putting the squeeze on pharma returns and limiting R&D budgets**. Figures from analysts Deloitte in 2016 reported projected return on investment was at a six-year low while development costs had risen by almost a third.

The litany of market changes is vexing for the industry. **The generation of blockbuster drugs, with massive returns**, **has ended,** national healthcare budgets are receding, traditional management methods are being challenged and new players, such as electronics and software companies, are entering the arena.

“**For pharmaceutical companies, the patent system is its lifeblood and it simply wouldn’t survive without it**,” says Simon Wright, a patent attorney with J A Kemp and chairman of the Chartered Institute of Patent Attorneys’ life sciences committee. “**The cost of getting a product to market is high and there is a high failure rate**, so you are not going to get investment unless you can protect your product and innovation. **Quite frankly, it would all collapse without good IP**.”

#### **Pandemics are a non-linear, existential risk---encompasses AND outweighs other threats. Empirically proven by historic epidemics such as the Black Death and Spanish flu**

**Pamlin and Armstrong 15**, Dennis Pamlin, Executive Project Manager Global Risks, Global Challenges Foundation, and Stuart Armstrong, James Martin Research Fellow, Future of Humanity Institute, Oxford Martin School, University of Oxford, February 2015, “Global Challenges: 12 Risks that threaten human civilization: The case for a new risk category,” Global Challenges Foundation, p.30-93, <https://api.globalchallenges.org/static/wp-content/uploads/12-Risks-with-infinite-impact.pdf> //Re DE EK

4 Global A pandemic (from Greek πᾶν, pan, “all”, and δῆμος demos, “people”) is an epidemic of infectious disease that has spread through human populations across a **large region**; for instance **several continents**, or even **worldwide**. Here only worldwide events are included. A widespread endemic disease that is stable in terms of how many people become sick from it is not a pandemic. 260 84 Global Challenges – Twelve risks that threaten human civilisation – The case for a new category of risks 3.1 Current risks 3.1.4.1 Expected impact disaggregation 3.1.4.2 Probability Influenza subtypes266 Infectious diseases have been one of the **greatest causes of mortality in history**. Unlike many other global challenges pandemics have happened recently, as we can see where reasonably good data exist. Plotting historic epidemic fatalities on a log scale reveals that these tend to follow a **power law with a small exponent**: many plagues have been found to follow a power law with exponent 0.26.261 These kinds of power laws are heavy-tailed262 to a significant degree.263 In consequence most of the fatalities are accounted for by the top few events.264 If this law holds for future pandemics as well,265 then the majority of people who will die from epidemics will likely die from the **single largest pandemic**. **Most epidemic fatalities follow a power law, with some extreme events – such as the Black Death and Spanish Flu – being even more deadly.**267 There are other grounds for suspecting that such a highimpact epidemic will have a ***greater probability*** *than* ***usually assumed****.* All the features of an extremely devastating disease **already exist in nature**: essentially **incurable** (Ebola268), nearly always **fatal** (rabies269), **extremely infectious** (common cold270), and **long incubation periods** (HIV271). If a pathogen were to emerge that somehow **combined these features** (and influenza has demonstrated **antigenic shift**, the ability to combine features from different viruses272), its death toll would be extreme. Many relevant features of the world have changed considerably, making past comparisons problematic. The modern world has better sanitation and medical research, as well as national and supra-national institutions dedicated to combating diseases. Private insurers are also interested in modelling pandemic risks.273 Set against this is the fact that **modern transport** and **dense human population** allow infections to spread much more rapidly, and there is the potential for urban slums to serve as breeding grounds for disease.275 Unlike events such as nuclear wars, pandemics would not damage the world’s infrastructure, and initial survivors would likely be resistant to the infection. And there would probably be survivors, if only in isolated locations. Hence the risk of a civilisation collapse would come from the **ripple effect** of the fatalities and the policy responses. These would include **political and agricultural disruption** as well as **economic dislocation** and damage to the world’s **trade network** (including the food trade). **Extinction risk** is only **possible** if the aftermath of the epidemic **fragments and diminishes human society** to the extent that recovery becomes impossible277 before humanity succumbs to **other risks** (such as **climate change** or **further pandemics**). Five important factors in estimating the probabilities and impacts of the challenge: 1. What the true probability distribution for pandemics is, especially at the tail. 2. The capacity of modern international health systems to deal with an extreme pandemic. 3. How fast medical research can proceed in an emergency. 4. How mobility of goods and people, as well as population density, will affect pandemic transmission. 5. Whether humans can develop novel and effective anti-pandemic solutions.

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### **On case**

**Top level-**

#### **Vote them down – their framework justifies homophobia which makes debate unsafe – it’s a teachable moment and you have an obligation as an educator to preserve the existence of debate and keep it safe**

**Soble quotes Kant, 03** Alan Soble, 2003, “Kant and Sexual Perversion,” The Monist 86:1 (Jan. 2003), pp. 55-89., <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2324025>, SJBE

**Kant immediately continues by completing his sparse inventory of three objectionable, sexually unnatural, practices:** **A second crimen carnis contra naturam is intercourse between sexus homogenii, in which the object of sexual impulse is a human being but there is homogeneity instead of heterogeneity of sex**. . . . **This practice too is contrary to the ends of humanity; for the end of humanity in respect of sexuality is to preserve the species without debasing the person; but in this instance the species is not being preserved** (as it can be by a crimen carnis secundum naturam), but the person is set aside, the self is degraded below the level of the animals, and humanity is dishonoured. The third crimen carnis contra naturam occurs when the object of the desire is in fact of the opposite sex but is not human. Such is sodomy, or intercourse with animals. This, too, is contrary to the ends of humanity and against our natural instinct. It degrades mankind below the level of animals, for no animal turns in this way from its own species.75

#### **Kantianism is racist – this is not just Kant himself, but his transcendental system.** **Kant’s philosophy depends on the character and capacity individuals have for moral reasoning.**

**Eze:** Eze 97—1997 (Emmanuel, Professor of Philosophy @DePaul University, “The Color of Reason” in PostColonial African Philosophy: A Critical Reader Cambridge: Blackwell Publishing, 1997, 103-131

Over and beyond Buffon or Linnaeus, Kant, in his transcendental philosophy (e.g., *Critique of Pure Reason),* describes ways of orienting oneself geographically in space, mathematically in space and time, and, logically, in the construction of both categories into other sorts of consistent whole. In the *Observations on the Feeling o/the Beautiful and Sublime,* a work which ought to be considered as primarily anthropological, Kant shows the theoretic transcendental philosophical position at work when he attempts to work out and establish how a particular (moral) feeling relates to *humans generally,* and how it differs between men and women, and among different races. For example, "feeling" as it appears in the title of the work refers to a specific refinement of character which is *universally* properly human: that is, belonging to human nature as such. And we recall that for Kant "human nature" resides in the developmental expression of rational-moral "character." **Since it is character that constitutes the specificity of human nature, "human nature *proper,"* then whatever dignity or moral worth the individual" may have is derived from the fact that one has struggled to develop one's character, or one's· humanity, as universal**. Kant states: In order to assign man into a system of living nature, and thus to characterize him, no other alternative is left than this: that he has a character which he himself creates by being capable of perfecting himself after the purposes chosen by himself. Through this, he, as an animal endowed with reason *(animale rationabile)* can make out of himself a rational animal *(animale rationale).* "**Character," as the moral formation of personality, seems to be that on which basis humans have worth and dignity,and one consequence of this is that those peoples and "races" to whom Kant assigns minimal or pseudo rational-moral capacity** - either because of their non-"white" skin color (evidence of lack of "true talent") or because of the presence of phlogiston in their blood or both **- are seriously naturally or inherently inferior to those who have the "gift" of higher rational attainments, evidence of which is seen in their superior "white" skin color, the absence of phlogiston in their blood, and the superior European civilization While the non-European may have "value," it is not certain that he or she has true "worth."** According to Kant: everything has either a value or a worth. What has value has a substitute which can replace it as its equivalent; but whatever is, on the other hand, exalted above all values, and thus lacks an equivalent ... has no merely relative value, that is, a price, but rather an inner worth,. that is dignity ... Hence morality, and humanity, in so far as it is capable of morality, can alone possess dignity. I**f non-white peoples lack "true" *rational* character** (Kant believes, for example, that the character of the *Mohr* is made up of *imagination* rather than reason) **and therefore lack "true" *feeling* and moral sense, then they do not have "true" worth, or dignity. The black person, for example, can accordingly be denied full humanity, since full and "true" humanity accrues only to the white European. For Kant European humanity is *the* humanity *par excellence.***

#### **Their failure to acknowledge historical racism associated with Kant’s philosophy is a link—no matter what, their principles are rooted in racism**

#### **Reps matter – that’s a prerequisite to evaluating their framework which outweighs since they kill accessibility – comes first since without accessibility we can’t debate.**

**1] the case contradicts itself kant uses universalizability but the aff only limits protections. If ips are bad, they are bad. Force the aff to choose one side**

#### **2]. Hijack—**

### **AT Practical Reason**

#### **This falsely conflates reason and the sort of practical rationality their authors are talking about. Reasons are simply justifications for acting in a certain way or supporting arguments for a logical proposition whereas their authors are talking about a statement of universal validity based in pure reason.**

#### **Offense**

#### **1] The inventor’s property rights must be legally enforced through IP protections.**

**Sonderholm 10 discusses** [Jorn Sonderholm (Professor with Specific Responsibilities at Aalborg University, Denmark, PhD in Philosophy from the University of St Andrews, UK, director of the Centre for Philosophy and Public Policy (C3P)), “Ethical Issues Surrounding Intellectual Property Rights”, Philosophy Compass 5/12 (2010): 1107–1115] SG

Traditionally, two distinct lines of thought have been fielded for the suggestion that IPRs are ethically justifiable. **One line of thought appeals to a natural right of an inventor to control the use of her innovation. This is the libertarian defense of IPRs** which has its historical roots in the writings of John Locke (Locke 1690). Robert Nozick has in more modern times been an advocate for this line of thought (Nozick 1974). **The libertarian view endows individuals with a natural right of appropriation.** This is the idea that **any innovator ⁄ worker who mixes her labor with a previously unowned object or natural resource comes to own this object or resource in full and can legitimately deny that other people use ⁄ appropriate this object or resource.** The natural right of appropriation central to libertarianism has an important proviso (famously formulated by Locke) which is an ‘enough and as good’ clause on original appropriation. The proviso states that one can only appropriate unowned resources if one leaves enough and as good for others. Where resources are scarce, one cannot legitimately stake a claim to something by annexing one’s labor to it. Neither can one come to own the scarce resource by enhancing its value. If the resource is necessary for the continued well-being of others, then the fact that x was the one who developed or improved the resource does not give x exclusive rights over it. x’s entitlement to reward for her labor is overridden by the entitlement of others to that which is necessary for their survival. **On the libertarian view, there is no morally relevant difference between, say, a farmer who mixes her labor with the land and thereby come to own the results of this interaction (the timber, the harvest, the fruits, etc.) and a medical researcher who mixes her labor with certain chemicals and thereby come to own the results of the interaction (physical objects and an intellectual idea ⁄ formula for an useful drug).** Provided that the farmer and the medical researcher pay heed to the Lockean proviso, they both come to enjoy a strong property right on the objects that result from their mixing their labor with unowned natural resources. **This natural property right is**, moreover, to be **written into the legal framework and enforced by the proper authorities** (police and courts of law). **Libertarians can therefore see trade agreements such as TRIPS as a legitimate legal enforcement of a pre-existing natural ⁄ moral right.**

### **2] Reducing IP protections arbitrarily coerces pharmaceutical firms and it’s not their obligation to solve the AC’s harms.**

**Sonderholm 09** [Jorn Sonderholm (Professor with Specific Responsibilities at Aalborg University, Denmark, PhD in Philosophy from the University of St Andrews, UK, director of the Centre for Philosophy and Public Policy (C3P)), “Paying a high price for low costs: why there should be no legal constraints on the profits that can be made on drugs for tropical diseases”, Journal of Medical Ethics, 2009; 35: 315–319, https://jme.bmj.com/content/medethics/35/5/315.full.pdf?casa\_token=b8TNX5kGB\_wAAAAA:zRKPmCqJ-kr3DVtwY2o0SLrIkohVq871eo2UO6mHs3pxLy\_kODqFnzdfqUI3XUnjnXjWKP0vmQj-] SG

It is, however, difficult to see why these people are supposed to take an economic loss. **By allocating resources into the research and development of a treatment for malaria** (an enterprise that is likely to involve high economic risk), **the people with an economic interest in the company responded to a health crisis that existed independently of them. However, the moment the research has proved successful, a special obligation is laid on these people in the sense that they have to take an economic loss whereas the rest of us** (wealthy individuals, governments of developed and/or developing countries and international organisations) **do not have to incur a similar loss. Such a way of distributing the economic burden related to making the treatment available to those who would benefit from it is unfair in itself.** The unfairness of the proposal becomes even more startling when one considers that, **in addition to legally forcing the producer of the malaria treatment** (or, at a more abstract level, the producer of D) to lower the price on the treatment, **there are at least two other ways of fulfilling the victims of malaria’s right to the treatment being available to them** (or, at a more abstract level, the victims of T’s right to D being available to them). **One solution** consists in **creating a fund that buys the expensive drugs from the producers and thereafter distributes it to those who need it.** The resources of this fund will come from contributions made by individuals, governments, charities and international organisations. **Another solution** consists in **letting the governments of those countries that are affected by tropical diseases pay for the drugs.**

On the underview

Permabsaility and presumption negate

1ar theory but not with those paradigm issues