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The Singularity Race (40 posts) (16 voices)

Started 2 years ago by alex.stremsky

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The Singularity can be the ultimate means to power. Who gets there first gets the world, maybe even the Universe, increasing their lead before the others exponentially. This attracts different entities into a "winner takes all" race - the Singularity race.

The civilization progress, if viewed as having levels for the analysis purpose, builds each of its levels upon the previous one. Thus, it related to a von Neumann machine: both are von Neumann-type processes. All such processes can be, and usually are constrained from being exponential for too long by some resource - either of its exhaustion, or of reaching the limit of its supply per an unit of time.

The progress is not an exception to this rule. In a world where competition is strong and the progress level is a key asset, the constraints that will be met first are the speed and the capacity of the engines that move the progress - the human brains. All other currently known constraints are much more distant, and will probably be easy to circumvent with the means of the progress level at the moment they are reached.

The brainpower constraints can be pushed somewhat further by better organization of the scientific process, social and economical adjustments etc. However, this degree appears insufficient to achieve the Singularity within reasonable time and investments - that needs a sufficiently developed artificial intelligence (AI). Therefore, the key to winning the Singularity race is the earliest development of AI that is able to increase its own abilities faster than human brains can do. So, the Singularity race is effectively between the entities who have the best base for developing AI, and invest the most in it.

The contenders

Currently (end-2015) the most serious contenders are some big American IT companies and some intelligence agencies. There are also several types of minor contenders.

The companies

These currently include Google, Apple, Microsoft, Yahoo, Facebook and IBM. Other company-type players might participate too silently to be noticed, or might join the race at a later stage.

Google

Opened the Singularity race, and currently appear to lead it. They have substantial finances, powerful IT infrastructure, a lot of talent, the best Singularity visionaries (both among the personnel and the owners) and a bind to the early adopters. Develop a lot of different AI-containing products, which together cover a wide range of AI aspects. Have amassed the probably biggest cache of information, including quality knowledge and human personal data, in the IT industry - and this is a key super-AI asset. If marketing mistakes like Google Glass are avoided, they have good chances to win the race.

What might hinder Google is neglect for human values. The quiet abandoning of the principle "Don't be evil" hasn't gone unnoticed by the supporters, and they are who gives Google the best talents. (And an important market leverage, especially on emerging markets - and the future income of Google will depend on these.) Compared to the power of a big company, the difference caused by the grassroots support usually appears negligible. However, this evaluation is often misleading, and in a close race even a small difference might prove crucial.

Apple

Despite the late start, they appear to catch up quickly. Have far more financial resources than any other big IT company, maybe even than all of them together. Have also a huge cache of human personal data and well-chosen quality knowledge. Given that the strategy of simplifying the users interaction with gadgets naturally puts them on the AI path, Apple might become the leader within a decade. Also, they lately show taste for acquiring companies developing key AI technologies, including outside of its current interest areas, which shows increasing Singularity awareness and tendency to develop in its direction.

On the detrimental side, Apple appears to mostly lack Singularity visionaries among both personnel and owners. Also, their ownership is more distributed and diverse than that of Google, so they might find hard to redirect quickly big part of its finances into this. Additionally, their strategy binds them to the fashion followers - those who bind to the early adopters are potentially better positioned in the race, and the difference will increase with the speed of the progress.

Microsoft

They know well the value of the big data on every user and are rumored to create specialized tools in that area for intelligence agencies and biggest corporations. That puts them on the road of creating powerful intelligence aids, giving key advantage to assisted human minds. And they will not be averse to using these to their own advantage. The default setup of Windows 10, and very probably of all further Windows versions is to keep most confidential user data on Microsoft servers - this gives them data hold comparable to that of Google and Apple. The public statements of some key people in the company creates the impression that they have realized the importance of the powerful AI, and probably that of the Singularity. They also have probably the biggest software programming potential among all entities. Finally, if anyone in the IT world knows how to be close with the big players and to use their influence to its advantage, that is Microsoft.

The sale of Bing might hamper their access to keeping locally the info wealth of the Net. (But rumors say that they kept the ability to mirror a good selection of all quality knowledge there, and maybe the access to the Bing storage.) Their corporate culture is oriented to profits chase and smaller-scale power plays - this might keep them away from massive Singularity-targeting investing into AI and the internal cooperation

needed to successfully engage such a huge task. Some of the early adopters and some IT personnel also tend to mistrust them, and this might silently hinder their efforts.

Yahoo

Currently they lag behind, but have good info search / access infrastructure and technologies. Add an ambitious boss with experience from other Singularity contenders, and some good financing might position them well in the race. If they go to sharing know-how and effort with NSA and/or the Pentagon, they might get that financing and some key technologies.

On the minus side, currently (end-2015) their chances are mostly hypothetical. The publicly available info does not show an AI development of a scale anywhere near that of the other company-type contenders. Also, they are under strong pressure from their owners to improve the short and mid-term profits, which can limit the investment into a long-term projects like the AI / Singularity race. Even if they succeed to turn to profit again, they might be too late for the race.

Facebook

When it comes to the progress, the humankind can be viewed as a single intellect, and the links between the people are not less important than these between the neurons in a brain. Facebook has more info about the inter-human links than anyone else, and thus is the best positioned to solve some key tasks in the development of a powerful AI. Their connections, influence and money can buy them most, if not all of the remaining key pieces of the puzzle. So it is possible that they will appear to lag behind the race leaders for a long time, but can suddenly spurt ahead on the stage of powerful AI development. They also show some of the marks of silent involvement into mass-scale information collecting - for example, their project to supply to big parts of the world free Internet, which will pass through channels controlled by them.

Few things can hold Facebook back. The apparent lack of Singularity / AI vision, even if real, will not last for long. None can replace them at the social networks throne. Still, if they manage to underestimate enough the importance of strong AI development, the race might pull too far ahead of them to catch up.

IBM

Their research on prospective hardware gives unique advantage over the mostly software-oriented contenders. Also, they have good software engineers and a leading role in the big servers market. Thus, they are an important wild card to watch. Powerful AI needs powerful hardware to run on, and they are *the* company for it. Having big experience with using IP rights, they are also more than able to successfully hamper the competition. Finally, does the word "Watson" ring a bell?

Not having some key AI prerequisites themselves (eg. big data cache) appears to relegate them to the role of a kingmaker. However, kingmakers often can easily put on the throne themselves, and Microsoft taught this lesson to none other than IBM. Also, they have invested for two decades in some key AI technologies, and have the best achievements there. So it would be prudent to assume that IBM is one of the most serious contenders.

The security agencies

These currently include the security agencies of China and Russia, NSA, the Pentagon, and the agencies of Great Britain and probably Germany and France, separately or in a joint initiative. Other agencies might be also in the game, or to join it at a later stage.

China

It is smart enough to realize the powerful AI importance, and is able to concentrate into its development money and human numbers that dwarf anyone else - maybe everyone else together. Its technological prowess in the supercomputers area is indisputable. Add to that its huge military-based spying network, and it might be the most powerful contender of all.

The hurdles at this race are the typical ones for an authoritarian / totalitarian country. It is not hospitable to disruptive ventures and personal initiative, and these are key parts of the technological advancement. (However, military goals are an exception to a big degree.) Also, it is close to exhausting the possibilities for extensive growth and having to switch to intensive one instead, and that is often a problem for authoritarian countries. (Its "communist capitalism" semi-feudal system might solve this to a degree, but is still far from the productivity a truly free system can unfold with the time.) Not solving this problem satisfactorily might limit the finances and the human potential China can invest in the Singularity race. (But a period of economical struggles might turn it to the idea for the Singularity as a solution for both economical and political problems.)

Russia

It is also not averse to spying and never saved money on military goals. Has a lot of talent and its culture is welcoming to technological advancement. (Especially in the military area, where they keep abreast with the US in a surprising number of areas, despite the much smaller investments.) Add to this a very strong and strategically minded ruler, and they might be also a top contender.

In addition to the typical authoritarian country hurdles, Russia might become cash-strapped in the near future. Shales are abundant across the world and the shale oil / natural gas technologies are relatively cheap and easy to master. So the hydrocarbons price probably will not stabilize above \$60 per oil barrel for at least a decade, and Russia exports mostly oil and natural gas and imports a lot of the goods it consumes - its future income might be severely limited. Still, much like China, the power there might see the powerful AI and the Singularity as the means to everything they might dream of.

NSA and the Pentagon

If Russia and China are in a "winner takes all" race, NSA and the Pentagon are bound to be in, too. Their financing might be relatively smaller, but they have access to the top technologies, a lot of the top talent and the top e-spying in existence. Their start might be later, but they are able to quickly catch up on need. And they might be able to convince the company-type contenders, all of these being American, to cooperate.

The downside is that if they create a powerful AI, it will be classified for a long time, and directed exclusively to military and intelligence goals during this period. (In some scenarios, all American AI achievements might be classified too, and take the same path.) This will effectively delay the advent on the Singularity, maybe for decades. Thus it will increase the risk that malicious and/or clandestine contenders might spy out, steal or develop first Singularity-capable AI technologies.

Great Britain

It will probably try to stick with the American efforts, building upon "Five Eyes" and other joint security efforts. However, if that turns impossible or unsatisfactory, it might decide to go alone. Has an excellent tradition in comparable projects and, through the British Commonwealth, access to plenty of talent. And its economics appears generally more resilient to crises than the average - that is, the financing of such an initiative might be smaller, but will be more reliable.

On the minus side, its resources are generally smaller than those of most state / intelligence agency players. Also, this will almost surely be a military / intelligence project, and will be classified and directed to the corresponding goals, with the effects described above.

France and Germany

Both are quickly becoming powerful AI and Singularity smart. Both are pissed by the American big IT companies and intelligence. Both will hate to see a powerful AI- or Singularity-enabled Russia or China. Germany has tons of money, organizational experience and talent, France - more talent and security experience. So a classified joint European Singularity-related AI venture is possible, if not even likely. Even if they decide to go separately, they will probably join efforts at a later point.

The downsides are similar to these of the described NSA, Pentagon or Great Britain projects.

Other contenders**The biggest retail companies**

Most retail companies invest heavily in data mining and statistics, and have done it for more than a decade. These areas are closely related to some key AI technologies, and are often numbered among them. Verbose information on a person's purchases has proved to supply a lot of insight into that person; such an info on many people gives a lot of info about the society. If augmented with a big cache of other personal data, it can be used to build powerful market research tools. The biggest retailers can easily buy such a cache, and often do.

The further development of market research tools naturally turns them into intellect-augmenting (IA) tools, which can substantially increase the profits. This tendency can easily cross the border with the assisted brain type AI development. A stronger Singularity awareness might drive it further, into the powerful AI development. (The retailers owners might be reluctant, but managers of big corporations have a lot of executive privilege. Approaching the Singularity and the creation of powerful AI increases the awareness of what these might bring, so the likelihood of such a development increases with the time. Also, the retailers' financial power and strength of interest into increasing profits can create very lucrative market for powerful AI tools, able to finance their quick development.)

The data collection and resale companies

As mentioned above, big caches of personal data are a good base for developing powerful IA tools, and the personal data market constantly demands such tools. So, the data collection and resale companies try to develop and/or order them from IT companies. This market is no-nonsense one: even a small power advantage is quickly noticed and attracts the buyers. Such a relentless pressure for more power can elevate the products into the area of assisted brain type AI development, and then further into the powerful AI. This market, though usually hidden from the public view, contains enough money to finance that.

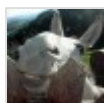
And it might be a dangerous development. The collection and trade of personal data is unethical and often not completely legal. This makes this market attractive to entities willing to violate the ethics and the law, and experienced in this. Such entities might not be the best custodians for a Singularity-level AI power.

The social networks companies

These companies hold caches of personal data, rivaled only by the biggest Internet search companies. (Most of the latter, being among the "big" AI contenders, are discussed above.) It is inevitable that they will be drawn into the personal data market, dealing and/or competing with the data collection and resale companies, and will eventually take the same road. And most of them have enough in-house tech skill to try and develop AI.

The problem here is that the social networks user "market" is very strongly aggregating one. Facebook has cornered most of it; the other players are niche ones, and don't have nearly the same amount of personal data. That is, their base for developing powerful AI is narrower - using it for that will require bigger investments than a Facebook or a Google will need to do the same. Still however, any of the bigger among these companies might provide another race contender with key data and technical expertise in the personal networking area, and thus to unexpectedly strengthen that contender's position.

POSTED 2 YEARS AGO #



zombiefood
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it could come from anywhere. there is a trick and the one who finds the trick might, like you say, rule the world

<https://quantumsausagemachine.wordpress.com/2012/03/23/its-reining-frogs/>

POSTED 2 YEARS AGO #



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(Continued from the previous post.)

The Singularity availability

Not just ethics

Do you like the idea of the Singularity benefits being available only to a few people, a new oligarchy? Most people don't, because this is immoral and unethical (or because they probably will not be among this oligarchy). However, it is a bad outcome even for the oligarchy, and even if the moral and the ethics are ignored.

The most important asset of a society thesaurus is its broadness. It depends on the number and the diversity of the participating entities, eg. individuals. (For this reason any human being, even the apparently most useless one, is an asset for the entire humankind.) A Singularity-powered group of superintellecs is a kind of society and therefore a thesaurus too. Leaving many people out would severely cripple it.

It appears that there are ways around this. For example, powerful enough intellects should be able to simulate all humans. However, simulating entities is a kind of incorporating them. If an intellect has the powers to simulate all or almost all humans exactly, then it has the power to incorporate them - that is, to effectively include them in the Singularity-enabled group.

This does not mean that they will be given any of the Singularity benefits - just that it is easier to support them than to discard and then re-created them. However, simulating something does not necessarily mean understanding it in full: understanding something (ie. merging it into a thesaurus) often depends both on having some info and on not having some other info. A superintellect that has more info than any human might be unable to understand things the ordinary humans do understand.

So, even if the humans who understand something are simulated by a superintellect, and thus are part of it, its higher levels might be unable to really get that thing - especially if there is a gap between them and the human level. Transporting information between intellect levels is never lossless. The larger is the difference between the levels, the bigger are the losses. Intermediate levels smooth this process, helping to minimize the losses.

The lower intellect levels are more important to the higher ones than most people think. Higher levels evolve from lower ones, and the evolution is a form of information processing - some of the info (ie. the level thesaurus) is being preserved and enhanced, but at the cost of some being discarded. (The losses while transferring information from lower level to higher are due to the same kind of process: "translating" it is effectively evolving it to a form that can be joined to the higher level thesaurus.)

There are other causes behind the losses, too. The usefulness of information is purpose-specific: what is noise for one purpose will be the useful info for another. And the discarding process is never perfect: there is always some loss of even the useful info. For this reason, the lower levels have broader thesaurus than the higher ones, and thus are the single source of useful broadness for them.

Obvious to the superintellecs?

In theory, superintellecs should be able to realize this and avoid it. However, this is not necessarily true. A Singularity-born oligarchy that happily excludes most people is possible despite the obviousness of this mistake, and even if it consists of very powerful intellects.

An intellect can be viewed as a system of theorems, and such a system always has a base of axioms. This base might put the benefits of limiting the power availability above the benefits of increasing it. Even the most powerful intellect that can be built over such a base might be unable to understand the wrongness of this axiom. This is especially valid if the base also underestimates the Godelian system incompleteness. And most axiom systems that assign very high importance to the power limiting also tend to assign low importance to the system incompleteness.

The security reasons

One might see the limiting of the availability of strong powers as a security measure that prevents their abuse - maybe even as the only practical one. The Singularity environment offers potential for exponential progress, and this drastically increases the temptation to try and block or eliminate the others and remain the single power. At first glance, limiting the number of the players decreases this probability by decreasing the number of the possible usurpers. However, this is an example for "triangular wheel" logic. (If a square wheel bumps the cart while rolling, by this logic replacing it with a triangular one should decrease the bumping, by decreasing the number of the bumps per wheel roll. In reality, this is the wrong approach: it takes the wheel farther from a round, non-bumping one.)

Similarly, the probability that someone will usurp all the power is decreased in reality by increasing the number of the entities who participate. Thus, a potential usurper will have to overcome the resistance of more entities, will lose a big part of the chance for a surprise all-suppressing action, will meet a defense in greater depth, etc. The combination of these factors is able to deter most potential usurpers at the intentions stage. Some excluding might also be of benefit, but the correct approach is not to allow the Singularity power to the few most trusted - it is to deny it to the few biggest malefactors.

(An analogy is the nobility during the medieval times. Its limited numbers and relatively large resources at hand led to investing a lot of effort into competition, often a lethal one. The result is that a feudal then had to protect himself from his peers far more than a citizen of a democratic country today does. Far greater percentage of the available resources then went to war and destruction, and far smaller to progress than today.)

The new level moral and ethics

Strong enough moral and ethics can thwart the power access limiting, and thus the catastrophic loss of thesaurus width. A society where these assets are prevalent creates structures for counteracting undesired power escalations far more easily. Thus, many people might hope that if

very moral and ethical entity wins the Singularity race, it will not keep the benefits for themselves, or will do it only temporarily, and the "Singularity oligarchy" scenario will be avoided.

However, moral and ethics do not appear automatically in a new level of sentience. They are emergent qualities of a system power level, and their emergence requires a sufficient number of entities at this level. That is why deciding to let to the new level only few, even highly moral and ethical entities, will probably fail. Power corrupts, and the Singularity-born power is beyond anything the humankind has dealt with. Trying to fight its corrupting effect with human-level moral and ethics might be as hard as trying to fight just with willpower a drug immeasurably more addictive than the strongest today ones, eg. cocaine or heroine.

Also, it is usually impossible to transfer moral and ethics from an intellect level to a higher one. The challenges there will be very different, both in essence and in power, from those on the lower level. It will be obvious that the transferred moral and ethics are not adequate. Keeping to them will bring failures, and violating them will appear the only logical move. Refactoring them to being usable on the higher level is essentially the same process as their emergence and requires the same conditions and time.

Cross-level moral and ethics

Another problem is that, contrary to the popular opinion, even a benevolent superintellect does not do good. It does supergood, which can be very different from good. (For example, it might decide to exterminate almost all humans in order to bring a much better society in the future.) From the viewpoint of us on the lower-level, this would be anything but ethical.

So, the Singularity-born intellects being ethical towards the ordinary humans is not granted even if the former succeed to emerge ethics on their level. Achieving that will require the higher intellect levels to allow the lower ones to determine their own fate, and to intervene only if the results will be disastrous. (And even then to keep their intervention to the minimum.)

This requires a different kind of ethics - cross-level ethics - which is even harder to develop than a new level ethics. Like the new level ethics, it is an emergent quality. Its emergence requires not only developed intra-level ethics on all levels involved, but also an uninterrupted and dynamic intellect / power spectrum within the levels range.

("An uninterrupted and dynamic power spectrum" means that there must be enough of entities on all levels in this range. Optimally, the distribution of entities along the power / development axis by enough of the important aspects will be a Gaussian curve. Also, there must be mostly unrestricted flow of entities between the levels. The lower-level entities must be able to escalate to the higher power levels and vice versa, this must be available to all or almost all entities, and must be easy enough to happen on a regular basis.)

Creating a Singularity oligarchy means creating a new level with few entities, separated from the level with the other entities (the ordinary humans) by a gap that is hard or even impossible to cross. Thus, it not only obstructs the emergence of moral and ethics on the Singularity intellects level, but also makes practically impossible that of a cross-level moral and ethics. Even in the best case this will result in severe, maybe permanent stunting of the growth of the civilization. In the worst case it may bring irreversible loss of the most of the civilization thesaurus.

Conclusion

For all these reasons, ensuring that the Singularity benefits will be immediately available to most (best to all or almost all) people is a key investment into the long-term development of the humankind. Failing to provide this very quickly after reaching the Singularity might be very hard or even impossible to reverse later.

Limiting of the access to these benefits might still be the only practical way to stop some malefactors from abusing them. However, the correct strategy is not to limit the access to few trusted entities, even with the intention to gradually widen the availability later. It is from the start to limit only the access of the worst among the already known malefactors.

(A good parallel to these two strategies are the two major legal presumptions - the presumptions of being guilty / not being guilty until the opposite is proven. The latter is the one universally accepted in the legal world, while the former is always rejected. The reason for this is not some desire to help the criminals escape, neither it is some liberal dream, detached from the reality. It is that the latter creates a much stronger, more productive and richer society than the former.

Ditto for the access to all Singularity benefits. The most dangerous of them might be still controlled, but their number must be limited to the absolute minimum, the control must be as light as possible, and must be relaxed at every opportunity. Even some risk of abusing them is more acceptable than a granted stunting of the growth and limiting the abilities of the new level of humanity development, and the high probability for losing a lot of thesaurus width.)

Where the perspectives for availability are going?

Will the current form of the Singularity race - that is, the nature of its participants - provide this availability? Let's dig into this.

The intelligence services

These are one of the two major classes of Singularity race participants. An intelligence service is accountable not to the entire humankind, but only to the people of a single country. Its primary job and reason for existence is protecting this country and people from the other countries and peoples. So, if it wins the race, the result will probably be available only to this country. Some of the benefits might be partially available to its closest allies too, but it is naive to expect that all benefits will be available to the entire humankind.

Worse still, even in the most democratic countries the intelligence services are shrouded in secrecy, and thus are effectively beyond the control and access of most people. To release the Singularity power and benefits to more people, the services have to go through the political top of the country, and the political top always attracts power-hungry people. (The top of the service - too.) Also, the Singularity benefits carry huge power, and such a power can corrupt very strongly. All this makes realistic the probability that, should the Singularity race be won by an intelligence service, a small number of top players might appropriate that power for themselves.

(Limiting the availability of the Singularity benefits can easily be justified with secrecy considerations, esp. during a military or terrorism standoff. Even if these considerations are genuine and the real reason for a limitation, elevated intellects with a high propensity for limiting the availability to "dangerous" abilities might unwittingly direct the flow of the events towards the same outcome.

That is why the very existence of such standoffs increases the risks of creating a Singularity oligarchy. Consequently, the closer the Singularity event is, the more justified is to suppress such standoffs and the lack of good faith they bring, even at the cost of some losses and risk. The optimal strategy here is to seek the best ratio of gains vs. losses. The gains from a properly introduced Singularity can dwarf everything we have now, and including all or almost all of the humankind is the key factor of a proper introduction. So, much larger losses are justified than it is usually believed, especially by people with protecting background - intelligence, defense, top politics.)

And that all is in the most democratic countries. In authoritarian ones, the intelligence services usually protect not the country, but the oligarchy who holds the power there, and often are themselves this oligarchy and the power in the country. Them appropriating the Singularity power and all its benefits is not simply probable - it is the only realistic outcome.

Also, the very existence and normal activity of authoritarian intelligence services might corrupt democratic institutions to a degree that most people wouldn't expect. The Schroederization of Europe shows that politicians are bought most effectively not with money, but with a specific promise. That there is a way to be not a servant to the society, but a feudal over it, and know-how and help on achieving it will be offered in exchange for service.

Even if the authoritarian intelligence cannot bring this promise into reality, planting the idea into susceptible minds might create in democratic institutions a seed seeking to grow into a Singularity-powered oligarchy. This promise is by essence one for power, and the Singularity power is far beyond what even the most authoritarian countries can offer. So, the "promise" of the Singularity might attract more people, and more strongly, than the promise of authoritarian intelligence services. Once the idea has caught hold, it can quickly snowball with the increasing of the Singularity awareness.

The companies

The other type of Singularity race contenders are the big companies. A company serves the interests not of all people, but of its owners only, and they are the ones entitled by law and custom to all its achievements. So, if a company wins the Singularity race, it might be even more predisposed to try to limit its availability than an intelligence service.

The popular belief that a company with many small shareholders might behave differently is wrong. Such shareholders are usually unable to organize quickly and take all or most high-level company decisions. The company executives there have more power and are subject to less control, in order to be able to provide effective steering of the company. So, the power focal point there is not distributed among the shareholders, but simply moved to another narrow circle - the executives.

(The Communist countries are an example of this. In theory, everything there belongs to all people. However, all people cannot effectively take all decisions, and a small group of top executives - the Politbyuro - is tasked with that. It ends yielding all the power in the country, out of the effective control of the people. We all know what this leads to.)

Another wrong belief is that things might be different if the state is the majority owner of the company, or if it controls the company through legislation. That again simply moves the power focal point, this time into the state administration. If such a company wins the Singularity race, the result is similar to an intelligence service winning it.

Moreover, legislation that would give the state a degree of control over the companies strong enough to be able to prevent Singularity abuse, would limit significantly the economic freedom and the civil liberties. This will strengthen the concentration of power in the state and will decrease the ability of the people to control it. So, appropriating and abusing the Singularity power will only become easier and more tempting. Stephen Hawking appears to have a point about it.

The dangers

The military threat

This is the Singularity-related problem that will likely arise first.

If a state gets in the Singularity race overwhelming advantage (after the exponent curve knee even a small advantage will tend to grow and very easily become overwhelming), it might decide to achieve "security forever" by "lobotomizing" all other likely contenders. The other state contenders might try to prevent this proactively by military means near the end of the curve knee.

Some authoritarian governments might consider even a mutual destruction to be preferable to a race loss. By the authoritarian logic, obliterating everyone else is the only reasonable thing to do first with the Singularity power. Due to this, losing the race means to them only one thing - destruction. The democratic decision makers might easily underestimate the degree to which the authoritarian contenders might feel threatened, their Singularity awareness, their level of advancement and their decisiveness. So, the military danger might be underestimated until it becomes too late to successfully tackle it.

The primary targets in such a development will be the AI research facilities of the race participants. Other people, connected in some way with the process, might be targeted too, since they always have some contribution. They might even be among the first targeted, due to being less defended.

There are several possible developments with different outcomes, ranging from acceptably small damage to a full Third World War. Describing them merits a separate analysis. It is important to know however that with a high probability most of the AI research personnel in these facilities might be killed or otherwise eliminated. This might set back the time of the Singularity event by a period, ranging in the different cases from decades to millennia.

Not developing needed moral and ethics

The progress is fastest and safest where exists an optimal balance between competition and cooperation. Usually this means competition at the progress edge and cooperation in all other areas - that is, the cooperation covers far more areas than the competition. However, all current Singularity race entities are extremely competitive, with nearly zero cooperation and trust between them in any area. In such an environment the risks grow exponentially together with the progress, often even faster.

The natural strategy of all Singularity contenders will be to develop a single intellect first, in order to achieve best concentration of resources and gain advantage in a tight competition with huge reward. This will most probably produce one powerful intellect that will have no comparable peers for some time. During this time it might go ahead enough to ensure that intellects developed after it will not be able to catch up. This will create a top intellect level consisting of just one member, with a gap between it and the next level, be that Singularity intellects or ordinary humans.

Even if the other contenders have comparable intellects, the communication between them will probably be limited or completely blocked, due to the low cooperation. This will prevent them from establishing a society where they can compare and thus develop their level's moral and ethics.

A new level ethics is prerequisite for a cross-level one. So is an uninterrupted and dynamic spectrum between the levels. Consequently, the cross-level ethics also will not be developed. The most probable result will be a Singularity monarchy. Which is the only thing having smaller diversity / broadness at its top level, and maintaining a larger gap between it and the lower level, than a Singularity oligarchy.

This situation will most probably stop the development of the human civilization. As the intellects that block the development will be much more powerful by these who would like to continue it, this period might continue indefinitely. During this time, a natural disaster too big and/or unexpected to be prevented by the higher-level intellects might be able to wipe out the human existence. The lack of diversity will also lead eventually to thesaurus potential depletion and dying of our civilization.

Conclusion

In the current situation there is significant probability that the Singularity race winner - a single entity or a very small group of entities - will appropriate the Singularity power to itself, will cut everyone else from it and will use it to create an uncrossable intellect power gap between them and everyone else. In other words, the most probable development of the current situation will be the creation of a Singularity monarchy or very small oligarchy.

Having an uninterrupted and dynamic abilities spectrum between the Singularity-born intellects and the humans is important. It is the key to creating a post-Singularity society that brings the Singularity benefits to everyone, and thus provides for the best development of the civilization for the predictable future. A Singularity monarchy or oligarchy will likely be dedicated to preventing the emergence of such a spectrum more than to anything else. So, the further development of the human civilization might be severely, maybe irreparably limited.

It is reasonable to expect that the entities in even a small Singularity oligarchy will understand well the need for further development. However, the very act of establishing an oligarchy requires negotiating a common base of axioms that puts its status quo as an exclusive group above anything else. This base is the "social contract" of the new intellect power level, and thus is the logical base to build the level thesaurus on.

Such a thesaurus will assign the highest importance to the exclusivity of the group and the complete balance preservation within it. Preserving the balance completely will require an agreement to stop the further progress, as it will be a source of disruption within the group. The group will also have to agree to concentrate most of its resources on stopping the progress of the level below, as it will threaten to close the gap between it and the oligarchy level, and to deliver disruption up. There likely will be negotiated checks and safeguards to ensure that these agreements are strictly followed within the group, preventing a possible Prometheus events.

All this sounds like a dystopic science fiction. However, all notions I have seen so far to contradict it appear to be products of a "this is too dark to happen" thinking, unable to refute the logic above. When dark events are prevented, it is usually not because they contradict our wishfulness, but due to people doing what must be done to prevent them.

POSTED 2 YEARS AGO #



Dan Foley
Member

Thought provoking, Alex. Very well done.

However, moral and ethics do not appear automatically in a new level of sentience.

How do they appear at all? And what exactly is morality? Do you mean by this a concern for others?

Natural concern for others seems to be severely limited in extent. (I would argue it is tied to sexual reproduction, rippling out from there in broader and less intense circles.)

And if such concern is primarily envisioned as the best way to maximize outcomes for all, thereby including oneself, i.e., if it is a telescopic calculation of the best way to benefit oneself, won't there remain an inherent conflict between the individual and "all?"

POSTED 2 YEARS AGO #

alex. good effort!



gottit
Member

the one who finds the trick might, like you say, rule the world

i could think a mind capable of making Superintelligence would want to rule apes..

or stay on the earth at all.

It's an idea that someone's built it & flown far away...
possibly setting mankind on the path to safety and succes.

POSTED 2 YEARS AGO #



alex.stremsky
Member

zombiefood: Winning the Singularity race by just finding "the trick" appears to me similar to becoming the richest person in the world by finding a treasure. Theoretically it is possible, but its probability is immeasurably small.

Dan Foley: Thank you for the nice words.

I call here "ethics" the behavior allowing one to protect the others around in a social group, and "moral" the behavior allowing one to be protected in a social group from the others in it (by conforming to its rules what behavior is grounds for being attacked). They are the two sides of the same coin - social compatibility / protection. (The exact meanings of these terms are far more complex and elusive. That is why I decided to go with simplistic but clean and logical meanings, and improve them or abandon and replace them with new ones when the analysis shows clearly the right move.)

Both moral and ethics are emergent properties of a society. The society must number enough of entities (eg. humans), must have balance between competition and cooperation, and must allow forming of groups inside it. The mechanism that emerges the moral is the process of agreeing on common values within a forming group: the entities that cannot conform to these values risk remaining outside of the group, and thus losing its protection. The mechanism that emerges the ethics is the competition between the groups: the ones in which the entities support each other tend to out-compete the ones lacking such a common value.

If a society is big enough, groups in it can also group in larger ones. Consequently, moral and ethics start emerge on the level of the groups within the larger group. Carrying them by analogy from the intra-group level helps their emergence on the inter-group one. If the larger groups also combine in still larger ones, the process repeats again. People group by many different attributes and everyone participates in a variety of groups, and this makes the carrying by analogy easier. The bigger the number of different groups and levels the moral and ethics emerge on, the more visible are the benefits from them, and the less visible is the competition that gives birth to them. Consequently, the closer their carriers are to the idea of universal moral and ethics.

Note: The inter-group competition comes after the forming of the groups, and thus the ethics emerges after the moral. This appears to contradict the emergence of the moral, as it requires some intra-group protection, which is usually attributed to ethics which shouldn't exist yet at this stage. However, groups have enough of protection mechanisms - protection in numbers etc. - to start the emergence of the moral even if they possess no ethics yet.

The relation between oneself and the others while maximizing outcomes is best understood by examining the laws and mechanisms that govern thesauruses. (For lack of better term, I call "thesaurus" any organized information system.) This would be best done in a separate post, which will probably come after the ones about the Singularity race.

gottit: Thank you for the nice words.

The idea that a super-intellect will want to rule apes does not appear convincing to me too. However, the idea that a super-intellect might want to prevent the apes from evolving and eventually catching up with it looks possible for some types of super-intellexts.

POSTED 2 YEARS AGO #



zombiefood
Member

zombiefood: Winning the Singularity race by just finding "the trick" appears to me similar to becoming the richest person in the world by finding a treasure. Theoretically it is possible, but its probability is immeasurably small.

because you dont know how to measure something does not mean it is immeasurably small

if you read the short story you would know the who i was talking about was the country of france, not some guy in a basement

POSTED 2 YEARS AGO #



zombiefood
Member

what you are saying is that human development is predictable and even determined

just as the predator prey relationship drove the need for prediction of the other

predicting continued and continues to be an adaptation and greater awareness means better predictions

this prediction ability leads to economic advantages and weapons advantages and to the knowledge that predictions are a huge advantage

this is currently what is driving the research for aware machines that can think and predict because evolution of biological machines is slow and evolution of machines is relatively fast

bottom line; this is to this point logical in hindsight and predictable beyond this point

the winner of the prize may win everything or share the cornucopia with the rest of the world

no telling what will happen but it is determined; not exactly but statistically

POSTED 2 YEARS AGO #



prodromosregalides
Member

THE CONTENDERS..

You forgot SAMSUNG, and the dudes inthe garage.

POSTED 2 YEARS AGO #



someday69
Member

WOW-- what a great post,,thanks now I've got'a get some sleep,,yet I will be back to read every word,,,Great@!!

POSTED 2 YEARS AGO #



bernat.mussons
Member

Unlimited power brings forth unlimited responsibility. In my view, singularity level power cannot be shared with all as this would most likely bring new meaning to the word terrorism, as much as I'd like for everyone to benefit from the singularity the way to go about it is not opening access to superintelligence but keeping it in-house and only sharing its beneficial research breakthroughs in fields like health, energy, etc.

POSTED 2 YEARS AGO #



mark antony
Member

bernat.mussons Unlimited power brings forth unlimited responsibility. Whomever gets to the singularity first will decide the fate of humanity.

prodromosregalidesTHE CONTENDERS.You forgot SAMSUNG, and the dudes inthe garage..

and don't forget the other dude almost a third of humanity believe in,

The power of immortality is the most powerful system of cosmic technology and to many people that Singularity event happened 2000 years ago by the Anointed One at the immortal word, - Tetelestai

<https://www.youtube.com/watch?v=svRJ7IDpSB0>

POSTED 2 YEARS AGO #



alex.stremsky
Member

zombiefood: I agree completely with this explanation. Please accept my apologies if I have misunderstood your first post incorrectly.

bernat.mussons: A power focal point corrupts those exposed to it by bringing hope that violations of the society laws and norms will not be punished. (In more analytic terms: power focal points destroy ethics by violating the conditions for its emergence and maintenance, specifically that of uninterrupted and dynamic power spectrum.) That is why people in positions of power are often corrupted, egotistic and/or otherwise unethical.

(An argument exists that the people in power happen to be sociopaths far more often than the average people, and thus are special and highly corruptible. However, there is a reason for this prevalence, and it is that the power focal points attract sociopaths far stronger than non-sociopaths. One way or another, the result is the same. This is especially well visible when analyzed on a more abstract level.)

The Singularity can bring power far beyond that of even the most powerful people today. If it is concentrated in a focal point, whoever controls it will almost surely be corrupted, usually far beyond most people in power.

There is also another illustrative example. If control and centralization of power in a society produced security and prosperity, then the most secure and prosperous people would be these of the absolute monarchies, totalitarian countries and despotic domains. The democracies would be on the bottom of the scale. However, what we observe is the opposite. People in democratic countries usually enjoy good security and prosperity, while the countries where most of the power is concentrated in a focal point are known for poverty, death camps, gulags and other drastic violations of all basic human rights and liberties.

In this specific case, giving the Singularity power to everyone would indeed bring new forms of terrorism. However, it will also bring the ability to defend against it. In this aspect, Singularity power is not different from every human advance, from the fire and the knife to the nuclear power and the computers. Limiting its access will enable the malicious entities, who always have greater propensity for power and its fruits than most others, to get to it before their potential victims. Hence the conclusion that limiting is only useful when only the few worst wrongdoers are denied full access to the benefits.

This is why security is not a reason to limit the availability to the Singularity benefits. It is a reason - maybe the primary - to not limit it.

POSTED 2 YEARS AGO #



alex.stremsky
Member

(Continued from the previous post)

An oligarchy appropriating the Singularity benefits is the biggest threat to the future of the humankind at this stage. It appears to be the only development able to block the civilization development for thousands of generations, and / or to decrease irreversibly the broadness of its thesaurus by magnitudes.

However, it is not the only undesired development at this stage of the progress. There are other ones that can decrease significantly the width of the civilization thesaurus. There are also obstacles that might delay the advent of the Singularity, and / or direct it in less than benign hands.

Losses of thesaurus width

The loss caused by these developments will be much smaller than the one caused by a Singularity oligarchy, and usually will be reversible to a degree. However, gaining the lost back might need big thesaurus reversions, and even then might be incomplete. Also, the combined loss from several of them might be close to that from the oligarchic development route. So, it is wiser to know them and do what is possible to avoid them.

Globalization gone wrong

The globalization brought to the humankind countless benefits. It enabled the exchange of advancements and technologies between different cultures, increased greatly the advantages of scale, created markets that financed new developments, improved the mutual understanding, connected people, gave them choice of society and culture etc etc. However, it can also create problems before the civilization progress and development.

Connecting cultures might merge, creating new and richer ones. However, they might clash instead, with one destroying most of the other. (This does not necessarily mean clash between peoples. For example, the bearers of one of the cultures might just abandon it for the other.)

Cultures are thesauruses. Merging them without losing some of their width is practically impossible. It is a form of evolution, which is in turn information processing. You can't do it without discarding some of the info. However, in the real life the losses are usually far larger than the minimum needed to sustain the merging - that is, we have unjustified and eventually harmful thesaurus width loss.

Hence the need of doing the globalization in a right way. If cultures are not connected, the benefits from their hybridization are lost. Also, they will tend to drift apart, which will make connecting them in the future harder and will increase the resulting thesaurus width loss. A clash will cause loss of width too. What produces the best results is a smooth connecting - one that keeps parts of the cultures areals mostly unaffected, and creates between them an uninterrupted spectrum of merges.

Is the current process of globalization going this way? During the last few decades there are significant efforts to create multi-cultural societies - by essence an attempt to preserve the cultures richness, or the thesauruses width. However, these efforts still fall short of the best possible, and often try to achieve their objectives in ways that provoke culture clashes. Also, during the last few years we see a lot of inter-culture fearmongering and scarecrow painting. This pushes the civilization towards social monocultures - that is, separation of the societies / thesauruses. Where civilization thesaurus development is concerned, not only we often do the globalization in a suboptimal way, but currently there is a tendency for worse.

Another globalization element is the survival of smaller cultures. All modern societies are built on economics. This makes them subjects to the scale economy law, which eventually leads to thesaurus aggregation. It puts the smaller cultures at disadvantage and entices their bearers to abandon them and join the larger and more successful ones. However, the preservation of cultures is to the humankind thesaurus what the preservation of species / biodiversity is to the life on the Earth. Currently it might be impossible to convince people to completely preserve some smaller cultures (including to live in their ways etc). However, it is possible to document these cultures as extensively as possible, and restore them in some way when that becomes possible. (The thesaurus aggregation has also delaying effects - see below.)

Lack of knowledge distribution

One of the richest and most important sectors of the civilization knowledge is the detailed one. As opposed to the general knowledge, it can be defined as the facts and their relations that are usually taught in the higher education, or known mostly to the experts. At micro-level it is the most diverse part of the civilization thesaurus, and thus the most important for its short-term development.

It usually is not considered endangered, as it will be very hard to lose it completely, at least at this stage of the civilization development. Even the most obscure of its elements are known to some pundit. Also, projects like Wikipedia create huge body of freely available knowledge. However, this is not enough.

Just being available does not make a knowledge element useful - being integrated in our knowledge system and having relations with other elements does. Being able to access the element does not mean being able to create the relations that make it useful. And the real wealth of relations (that is, their thesaurus width) comes not from just having stored as many as possible, but from having many different and sometimes contradicting and incompatible sets of relations for the same element, each set being supported by different entities. Currently we have only one way to achieve that - by teaching this knowledge to many different people. Failing to do that creates a subtle but important form of thesaurus width loss.

Teaching knowledge from this sector to many people depends on the availability, the attractiveness and the diversity of the higher education. Different countries fare differently at this. If the higher education is not readily available to a part of the population, this limits the knowledge

spread. (There are initiatives around this, eg. making university courses freely available over Internet. However, this model might be unsustainable at the long term. It also might give worse results than the classic university studying.)

Giving high education to as many people as possible is important also for the process of achieving the Singularity. As Ray Kurzweil notes, the progress constantly destroys low-education jobs and creates high-education ones. Not having enough of educated specialists drives the development costs up, and might delay the development even if the increased costs are paid.

Losing / not developing art products that include unique thesaurus elements

Art is of huge importance for the human progress. We often pursue not the advancements that are most easily achievable, but the ones we find most attractive. And the art is what convinces us in their attractiveness. Our development might be directed by our art more than by its own logic.

Like the cultures, the art pieces and movements are elements of the civilization thesaurus. The scale economy law and its aggregation effect is usually believed to be less valid on them, since the art creators have a strong desire to diverge. However, creation is only one of the two sides of the art. The other is its consumption, and the art tastes of most people are influenced by the aggregation effect. So, rarely used thesaurus elements might be lost from the art, and the art often is the only place where a thesaurus element is present. Exactly like with cultures and knowledge, this can also lead to unjustified loss of thesaurus width.

Other lines of thesaurus width loss

Culture, knowledge and art are not the only civilization elements that are governed by these rules. Every other thesaurus element - technologies, memes etc - does too, and is also a possible line of thesaurus width loss. So, they can be easily analyzed the same was as the cultures and the art above.

Obstacles before the Singularity

The Singularity is probably the most disruptive event in the history of the humankind. Every human being has to gain from it more than anyone can imagine. However, not everything that it and its advent bring is to the taste of everybody. There are also tendencies that will weigh against it. Finally, there are entities who will lose from it more than they will gain.

Many factors can put obstacles before the Singularity. All of them are eventually forms of inability of the current civilization thesaurus to keep consistent at higher progress speed than it is accustomed to. (Measures to solve this problem might be discussed in another post.)

In a multi-polar world these tendencies will not be able to prevent the Singularity - almost none of them will affect all race participants. They also will not be able to delay it for long, for the same reason. Some participants might delay their own Singularity-bound developments, but others will not. If the frontrunners slow down, the next ones will overtake them. Even if all states undertake a coordinated legislation and enforcement against these developments, the Singularity will be achieved by underground entities with no more than two or three decades delay.

Is that good news? Not exactly.

Different race participants will use the benefits of the Singularity in different ways. In a democratic and free country, most (if not all) of them will be made available to everybody. In an authoritarian country the situation will probably be very different: the ruling oligarchy will keep all or

almost all of the benefits for itself. If a powerful criminal organization gets them, the situation will be even worse - but still not as bad as if they end up in an Islamic State-type big terrorist organization. So, who will win the Singularity race is important.

A thesaurus usually develops with greatest speed and width in free conditions - democratic countries or entities with similar social structure. That is why in a long-term progress race they are the most likely winners. However, if they delay enough their Singularity-bound developments, the leadership in that race will pass to authoritarian entities, or to corporations that work in this direction illegally. And if the state players succeed in suppressing all known race participants, the leadership will end up with the criminal and terrorist organizations.

The rules are simple. Delaying the Singularity for too long is impossible. If an entity tries to do that, it will only redirect it to some other entity. The bigger is the delay, the worse the race winner will be.

(That is why attempts to delay the Singularity might be initiated and secretly assisted by the entities who will benefit from that. Some Singularity race entities might continuously invest significant resources to turn public sentiments and centers of power in other entities against the Singularity, in order to push them into limiting their Singularity efforts, or even into making anti-Singularity moves. This is especially valid with states: authoritarian states will almost surely try that against democratic ones. The democratic states are more vulnerable to this kind of attack - the authoritarian ones should be very stupid to not go for it.)

Misdirecting the Singularity

If an authoritarian state wins the Singularity race, nobody will live happily. The world population will be oppressed in ways and to a degree we have never seen before. The ordinary citizens of the winner state - too: authoritarian ruling oligarchies are more afraid of their own citizens than of anyone else. Even these oligarchies will lose - the Singularity environment will push the competition between their members to the extreme. Most of them (maybe all but one) will be obliterated, the winners will get a world without joy and will have to maintain it stagnated, or will risk being disrupted and displaced. In short, this is one of the worst variants of oligarchic Singularity.

Authoritarian states usually control far larger percent of the resources and the product of their countries and economics than the democratic ones, and thus are more able to concentrate efforts into specific goals. They may also benefit from maintaining greater secrecy about their progress, hiding and / or exaggerating it, according to the need of the moment. However, they often have hard time recognizing and recruiting talent and retaining its loyalty. Also, concentrating efforts typically achieves quick development, but in a narrow thesaurus area, which causes the development cost to start growing exponentially soon. So, in a longer-term technological race they usually lose, except when democratic entities slow down.

Even if authoritarian states are out of the Singularity race (as noted in previous posts, at least two are in), the world currently sees a rise of the number and the sophistication of the criminal organizations. Some of them have billions and know well the value of the technological advancement, having used it for long for doing crimes and / or avoiding the law enforcement. And some have connections, intelligence and corrupting influence rivaling that of state entities. If the Singularity is hampered by legal means, they might be the only ones able to circumvent these. Everyone who needs Singularity-level technologies will have to deal with them, and they will be the only employers for talent in Singularity-enabling science and technology. As a result, in such a situation they might be able to reach first the Singularity.

Extreme conditions might turn into a danger even a typical high-tech corporation, scientific institute or other similar race entity. An example could be a legislation that strictly prohibits the Singularity seeking, prompting the entity to do it in deep secret. Another example might be social customs or moods that reject key Singularity elements, and thus force secrecy around their development. Yet another might be extreme legal protection of corporate affairs, making the state(s) incapable of controlling corporations that are into this race.

(In many big corporations managers has almost unlimited power over the intra-corporate existence of their subordinates - positions, duties, salaries, benefits, privacy etc. This makes these corporations close in many social aspects to an authoritarian state. If left unchecked by the legislation of a democratic state, they might be as prone to creating a Singularity oligarchy as an authoritarian state would be. Even if their initial attraction to the Singularity is completely benign, it would easily evolve into what stems from their social structure - see the analysis in a previous post.)

There are also the terrorist organizations. Some of them control territories, have budgets and might be able to recruit some ideologically predisposed and / or ethically flawed talent. They also often have supporters in unpredictable places and might be as skilled at stealing information and technologies as an authoritarian state. They usually aren't considered to be Singularity race participants, and might be able to go under the radar even if they are deep into the race. Even less than complete Singularity-level technologies might be able to produce devastating terror, if not countered by widely available technologies of the same level (and possibly set), and that will probably attract the terrorists. So, hampering the Singularity advent for long enough creates opportunity for some terrorist organization to achieve huge destruction, and in some extreme situations maybe even to win the Singularity race.

Ways of delaying the Singularity

It is often believed that nothing can change the speed of the humankind exponential development. However, this speed depends on the exponentiation factor in the math formula of the development. Many elements contribute to this factor - amount of investments (money, talent etc), social preparedness, amount and strength of roadblocks, thesaurus width in this area, etc. Changing them changes the exponentiation, which leads to speeding up or delaying the Singularity.

There are many reasons to want the Singularity advent as early as possible. Minimizing the loss of thesaurus width - the human lives are only a small part of what is being lost every day. (From thesaurus wealth viewpoint the losses may appear relatively small but, being pre-Singularity ones, they will be harder to recover later.) Bringing faster end of many causes of human suffering and implementing sooner our dreams. And probably most of all, keeping the Singularity control from falling in the hands of malicious players, which is only possible by outrunning them at development and spreading the Singularity-enabling technologies as widely as possible.

Speeding up the Singularity is however not easy. Most of the apparently good ways to do it have severe drawbacks - for example, trying to concentrate efforts and create a "Singularity for the enlightened", and then to gradually spread it over all or most of the society, might result in a Singularity oligarchy model instead. Some of these drawbacks are counterintuitive to the degree of being overlooked by most analytics. Overall, it appears that all good ways to speed up the Singularity are enormously costly, and relatively small resources or even random flukes might abort them.

Happily, this characteristic has another side. There are factors that can delay the advent of the Singularity by years or even decades, but that will take about as huge resources as speeding it up. And even if applied, they can be defeated by relatively small ones, if used properly and early enough. So, knowing the delaying factors allows overcoming them with the resources the Singularity community has or will have in the near future. In fact, most prognoses on when we should expect the Singularity assume some delay due to these factors, so overcoming them will be in practice speeding up its advent.

Lack of social preparedness for controversial results

The coming of the Singularity needs the presence of many factors (termed here Singularity-enabling factors.) A very important one is the preparedness of the society.

Some of the Singularity results are controversial or even impermissible by the traditional standards of the society or of its influential parts. For example, strong protection and/or easy change of identity might be forbidden by the law enforcement. Technologies that allow easy changing of sexual preferences and/or gender might be strongly rejected by certain confessions. Powerful enabling (cure for cancer, big life extension etc), if available for a long time only to some people, might stroke a destructive social unrest... Such developments might lead to social rejection of and measures against key Singularity-enabling factors.

The society must be prepared to accept these developments, and the speed of that preparation is limited by social factors. Increasing it quickly might require much larger resources than any other Singularity-enabling factor.

Rejecting key enabling factors might severely delay the Singularity. Workarounds exist, but might be much harder to implement in practice than is usually thought. To sum it, insufficient social preparedness for the results that Singularity brings might delay / misdirect it, even if all enabling factors are available or within easy reach.

A development speed higher than the society integration speed

Even if a Singularity result is generally acceptable to the society, this does not necessarily mean that it can be integrated immediately in everyday life. The society must have time to adapt its functioning to the new developments.

The closer is the Singularity, the faster is the progress - but not the speed of the society adaptation. The social structures might find increasingly hard to integrate some progress results. Preparing the society for them much faster might require huge resources - larger than eg. the creation of powerful AIs. An unprepared society might sideline some Singularity developments and / or limit their effects, resulting not only in a delay, but also in a thesaurus width loss.

Even where quick development products are socially acceptable and not sidelined, keeping up with them requires a lot of resources. Many entities will seek ways to maintain a slower pace. People might skip buying newer and better products if their current ones feel good enough. (Some people already refuse to use newer high-tech gadgets even if received for free, to avoid retraining time and efforts.) This might turn such products into market flops, and thus undercut the investments in progress. Companies who are forced to go fast by the competition pressure might cartel in order to limit the progress speed in their market segment. States whose institutions and legislation are obsoleted too quickly might legislate limitations to some advancements, or even to the progress in principle.

Hurrying up the wrong way

High-tech oligopolies might produce fake progress products (eg. "upgraded" interface with the same or even downgraded real functionality). These cause among the users a backlash, often mis-directed against the progress in principle. A lot of these products also violate the privacy and the civil liberties of the users, to the same effect. Even if the producers don't have such intentions, oligopoly products often have low quality and security, and this might be exploited by malicious players, again with this result. The longer the spread of the backlash has been avoided, the stronger the abuse will become, and the stronger will be the mass reaction to it, once it gains momentum. Such a reaction might swing the social pendulum far into the anti-progress zone.

(Oligopolies and monopolies are delaying the Singularity also in the most direct way. It is the competition that drives the innovation. A decrease in the competition is always matched by a decrease in the speed of innovation. The high technologies are the key thesaurus elements set for reaching the Singularity, so oligopolies and monopolies there have especially delaying effect.)

Progress products that disrupt powerful players might raise their Singularity awareness. For example, technologies that save on energy (eg. completely immersive telecommuting that replaces travel) might severely undercut the profits of many energy producers. Quantum computing for personal use might tread on the toes of security agencies and cloud services companies. Versatile and cheap 3D printing can disrupt many industries. These and other developments might turn influential centers of power against the Singularity and/or its enabling factors, which might complement the social backlash.

Legislation problems

As of the end of 2015, there already is some fearmongering against powerful AIs. It will only strengthen in the future, fed by different interests. Power holders might try to block AI development to avoid being disrupted. Singularity race participants might try to limit its usage (and publicly even its development) to create a Singularity oligarchy. Workers who can be replaced by AI might act against it to preserve their jobs. Law and peace enforcement institutions might not like the idea of powerful AI at the service of their enemies. When combined, these interests might be able to introduce a legislation blocking the development of powerful AIs, especially of non-specialized ones.

Another important Singularity-enabling technology - self-reproducing automata, nanobots or specialized microorganisms - will also face similar fears that might lead to legislation against it. Yet other key Singularity-enabling technologies or other thesaurus elements might also be legislated against. Yet other important enabling technology might be the 3D printing, which might prompt many industries for lobbying for legislation against it.

Legislation against the Singularity-enabling factors is one of the surest ways for a state entity to put itself (and its corporate entities) out of the Singularity race and pass the victory there to others. The results are discussed above.

Insufficient resources

In the democratic countries the technologies and other thesaurus elements leading to the Singularity are developed mostly by private entities. (There is also development by state entities, but most of its results are usually classified and thus unavailable to most entities who would build upon them.) This makes their progress dependent on the market conditions. Bad marketing or widespread mistrust can decrease the return from the products, and consequently the investments in creating and developing these thesaurus elements.

Big economical crises might also undermine these investments. They can also hamper the financial resources that the race participants might like to direct into such a development. So can any big endeavor that consumes a lot of the society resources, eg. a war, a fight against a global disaster, etc.

Excessive secrecy

The progress is a process of building new knowledge, technologies and other thesaurus elements over the existing ones. If technologies are classified for intelligence, defense or any other reason, they are available only to a small percent of the potential builders. This decreases their availability to the progress and ultimately decreases its speed, thus delaying the Singularity. (Another way to define their decreased availability is "limiting the thesaurus width at the current level". It illustrates well the role and the importance of the thesaurus width for its development speed.)

Pushing such a secrecy too far also increases the risk of mis-directing the Singularity, as it increases the probability that an authoritarian state will win the race. To successfully protect the Singularity-enabling development from another state, it must be highly classified. The authoritarian development institutions are usually already highly classified, while in democratic countries often only a small part of the resourceful and

interested entities will have such an access. So, classifying a development in a democratic country gives it some protection, but also severely limits its availability to build upon. In times of peace the second factor usually has the stronger effect, especially in longer term.

Arms race and/or spying paranoia very probably will increase the secrecy around the Singularity-enabling technologies and knowledge. After the Singularity awareness increases enough, it might provoke itself such a secrecy. The closer the Singularity comes, the greater is the probability for this development. (Which in some aspects is the perfectly undesired way to go, as it also prevents creating trust and links between the race participants. At the final pre-Singularity stage, the lack of trust might be a cause for military conflicts - see previous parts of this analysis.)

Runaway intellectual property rights

The IP rights are a key legal invention of the humankind. It allows the creators of intellectual product to have remuneration for their work, thus opening the door for industrial development of such products and allowing the speed-up of the progress. However, the overprotection of the IP rights can be as bad for the progress as the lack of protection, or even worse.

Unlike the classical property, the intellectual one is inherently monopolistic. If another person owns a house, building your own house to its likeness is not a theft from the owner. However, if another person owns a technology, copying this technology is a theft - an intellectual product can have only one owner. (In fact, copying another person's house might be a theft of IP rights.) In a free economy and market, a monopoly is the the worst that can happen - it is their killer.

The creators of the IP rights idea pointed in their motives that the monopoly character of these rights puts the interests of the owner directly against the interests of the society - and that the interests of the society should take precedence. That the IP rights should be protected only for a short initial period, to give the creator the opportunity to return his/her investment and profit decently, and then should be available to the entire society.

However, the intellectual products don't live forever. Nobody uses anymore catapults, steam engines or phonographs, despite that they aren't covered by IP rights. There is no universal agreement on what percent of the life of an intellectual product should be protected to the creator, but clearly should not be all of it, as this puts the product in practice under an eternal monopoly.

As of the second decade of the 21 century, the life of many new technologies is comparable with the patent duration (20 years under most legislations). In the fastest-developing, high-technology economics segments, the average life of a technology is already less than 20 years - that is, most new technologies there effectively are under an eternal monopoly. The further the progress advances, the more of the human civilization / thesaurus will belong to the high-tech area, where the IP life is shortest. Separately from that, the increasing speed of the development will shorten the life of all technologies. (And of most other thesaurus elements, eg. pieces of art.)

In addition, in the high-tech development we sometimes meet a "single-road technologies", for which it is extremely hard or even impossible in practice to create adequate substitutes. All development there can be controlled by the owner of such a technology - that is, they receive a monopoly over the development. Circumventing these roadblocks is only possible through a different group of technologies / thesaurus segment, that is developed comparably with the one being circumvented. This is one more argument how important is to preserve as much thesaurus width as possible - and one more example why limiting the thesaurus width plays in the hands of the Singularity adversaries, and might be targeted by them.

At the same time, the need for legal protection of the IP rights decreases with the increase of the development speed. A leading company that does not upgrade a significant part of its technological portfolio for just a couple of years often risks falling behind the competition. (Couple of years are often enough to develop competing technologies.) Even more importantly, the time its competitors need to develop a competing technology is often comparable to the time they need to just implement a stolen one. In other words, what keeps most the business investing in development of new technologies is not the legal protection, but the pressure by the competition. (In fact, the IP rights are increasingly used not for obtaining a decent profit, but for suppressing the competition and achieving a monopoly.)

The problem is exacerbated by the ineffectiveness of the current IP rights system. For example, patents have been conceived as strictly inapplicable to pure ideas, but many countries permit software patents, and many of these cover pure ideas. Also, in practice it turns out easy to patent things that should not be patentable (eg. structures or processes met in the nature), and hard to cancel these patents. Finally, the high IP litigation cost introduces into reality the principle that the (financial) might makes right, and thus limits the incentive for development and creation of intellectual (and any other) products - the closer the Singularity, the stronger.

For all these reasons, the duration of the IP rights protection should best be decreased while approaching the Singularity, to prevent delaying it. Ideally, at the moment of the Singularity it should be zero. However, what we see currently is rather the opposite. The duration of the IP rights is being increased periodically, to a degree that gives an "escape velocity" to the rights over some intellectual products.

Also, more and more thesaurus elements are being covered by IP rights, risking a gradual shift to an "IP rights feudalism" - an economy where most profit is generated not through work, enterprising and innovation, but through renting an indispensable property to those who work, enterprise and innovate. (This tendency is already seen in the so-called "non-practicing entities".) This moves most of the profit out of the hands of the entrepreneurs and thus leaves the development underfunded. It also directs the best minds away from development and into ownership business. All these limit the development speed.

This also increases the probability for a pre-Singularity rights lockup between two or more IP rights owners (each having one of several key Singularity-enabling technologies, and not willing to license it to someone who might thus collect them all). Such an event might delay the Singularity by decades, which almost surely would misdirect it.

It is true that the misuse of IP rights is not too widespread, as of the end of 2015. However, they already play an increasingly strong delaying role through the chilling effect. The increased risk of litigation about IP rights makes the usage and building upon front-end technologies increasingly risky and thus costly endeavor, especially for smaller companies - and their group has the greatest potential for such developments, as their big number and diversity makes the most of the technologies thesaurus width.

Closed technologies

There is a saying that the person who contributed most to the existence and the richness of the open source software is Bill Gates. It is usually considered a joke, since Microsoft is perceived as an enemy of the open source, but carries an important truth.

The early versions of MS-DOS and Windows were almost as opened technologically as the UNIXes, and had even more, better and more easily available documentation. At the same time, they reached magnitudes of users more than all UNIXes together. Thus they gave to much more people the opportunity and the lure to work and tinker with software and OS, hack at its internals and understand how exactly it works. That in turn produced a big and highly competent software workforce. It created and/or enriched most currently used software, both open source and proprietary.

Had these versions of DOS and Windows been as closing their internals away from the users as the modern versions of Windows, MacOS or Android, they would attract many times less tinkerers and curious minds. (Also, digging into closed internals is illegal, so some of the attracted would acquire taste for breaking the law.) Consequently, that workforce and its competence would be smaller by magnitudes. So would be the software we have now, in quantity, quality and degree of advancement. The AI software would come later and at higher cost, and the market for the AI products and most other Singularity-enabling technologies would be far less developed now... In short, the openness of our technologies is of key importance to the speed of our progress.

The real resource that is being invested in the progress is active knowledge - money just buy it. So, decreasing knowledge spread limits and makes more costly the investments in the progress. Many tendencies work in this direction. Closing the access to product technologies and decreasing the "hackability" of the products. Limiting the access to communication (eg. Internet) that prevents the spread of information. Military, state and trade secrets that block the wide access to key knowledge... The list is by far incomplete.

How do we fare at this? Currently there is a strong trend to decreasing the availability of the internal workings of most high-tech products to their users. Some of the causes are objective, for example the size of the code base for most modern software and the degree of integration in a modern semiconductor chip. However, the single biggest cause behind this trend are the interests directed at blocking the competition, hiding from the users functionalities they may object to, preventing the evaluation of the product quality in depth, etc. All of these eventually delay the Singularity through the described mechanism. (They also have some effects that prevent delaying the Singularity, for example hiding the usage of technologies that otherwise would be unavailable due to excessive IP rights. Other effects, like the widening of the AI development to unlawful activities, like the illegal gathering, processing and selling of personal information, has both positive and negative effects on the progress.)

The main negative effect of this trend is the decrease of the numbers and competence of the incoming high-tech workforce. Even where its members have real knowledge, it is often fragmentary enough to be good only at solving problems limited to a narrow area, This decreases their ability to integrate across technological areas, create products hybridizing different thesaurus elements, compare groups of technologies that have similar application but different base, etc.

Aggregation effect in economics

An economics needs companies of all sizes - small, medium, large. However, there is some optimal ratio between these types, at which the economics is most productive. It differs in different situations, but is most often a form of Gaussian curve: the mid-sized companies should be the biggest portion of the economics.

The scale economy law however means that companies will merge or buy one another to increase in size, in order to gain competitive advantage. Thus, the company size ratio will be distorted with the time towards the bigger ones, and bigger means fewer. Eventually this will decrease in some key business areas the number of the companies that do most of the business to effectively an oligopoly, sometimes even to a monopoly. This might limit or even destroy the freedom of the market in these areas, and this the base of the development in them. The result will be a delay of the development in these areas. (Also, the decrease of the companies number is essentially a loss of thesaurus width.)

The aggregation process is especially fast and strong in the Singularity-enabling areas - AI development, Internet providing, the entire IT branch. For example, in USA the development and manufacturing of CPUs, the OS development, the Internet providing, the search engine business are monopolies or tight oligopolies, and this already reflects on the speed of development in them.

The emergence of a company that holds most of the market in a segment often creates the so-called market leadership. Market leaders are able to impress pseudo-cartel behavior on their market without an actual agreement between companies, and even without targeting it, just by sheer weight. The result is again a loss of market freedom, and in extension of development speed.

Market leaders in high-tech business often discover also another effect. The aggregation of the customers around the most accepted is especially strong there. The faster technological development by the market leaders does not attract the customers to them as strongly as in other business areas - but the inability of the competition to duplicate their products, or achieve interoperability with them, does. In other words, attracting and keeping customers with quality costs to the market leaders much more than "playing dirty" - developing technologies designed to keep the competition behind, "arresting" clients in "walled gardens", abusing IP rights to block competitors efforts at developing technologies and achieving interoperability, etc. The victory starts going not to those who run faster, but to those who trip the others - and the runners adjust their strategies or lose... This also delays the development and the Singularity.

Powerful opponents

People in power often believe that a high position is more important than progress achievements. Also, there are entities that will lose because of the Singularity more than they will gain, some up to ceasing their existence - corporations, state institutions, states etc. Most of them are quite able to defend their interests despite consisting of people who will gain more than they will lose. And some of them have enormous influence.

Even if pooled, their resources will not be able to delay the Singularity by much. However, the delay might be sufficient to mis-direct it into malicious hands. Also, most of the developments listed above might add to their power, or to give them convenient leverage against key Singularity-enabling factors.

Summary

A race has many aspects. At first glance, it is all about who wins. However, an unfair victory is often worse than a loss, especially in leadership races. A bad leader is a disaster for the entire group, including himself, much like a bad CEO can bankrupt his company. When the race is the Singularity one, the company is the entire humankind.

Given the diversity of the Singularity race participants, a delay in the speed of some of them will inevitably mean not a big delay of the Singularity as a whole, but pushing it into the hands of others. And that will probably be the worse outcome. In unrestrained conditions, better societies usually progress faster than worse ones. However, if the better societies are tricked into limiting their own speed, worse societies and/or malicious players might win the race.

For this reason, one of the best things the Singularity community can do is to counteract the possible causes for Singularity delays.

POSTED 2 YEARS AGO #



GreenDocNowCiv
Member

Ray points out on the homepage (as of a day or two ago, today being 27 Jan '16) in one of his videos in the Nobel story that we have a good chance of good guys winning the AI war. He points out that the millions around the world using smartphones are all connected AI's now, to a degree. As AI improves, that currently in place AI connection becomes more and more profound. As we get really advanced, with really good conversation in our AI's allowing to interface with it really well, many of us will be keeping up with updates, and our AI's themselves will be

heavily tasked with doing that. Millions of people should get it, when we get it "for real," so it won't be just the toy of a bad boy sitting in a big, overstuffed throne in Moscow or Peking.

POSTED 1 YEAR AGO #



alex.stremsky
Member

I am afraid that this does not bring much relief. Even if the bad guys don't win that race, having good guys win it in a way that will turn them into bad ones is practically the same. And even if the good guys don't turn bad, winning the race in a way that might provoke a big war is not a good development too.

Being a mere user of an AI gives you service, not power. Power - over you - is what it gives to whoever controls that AI, good or bad. And what makes someone good or bad is not so much the capital he is sitting in, but whether he has uncontrolled and unchecked power. We consider the boys in Moscow and Peking bad due to the things they do, and they do these because their power is mostly uncontrolled and unchecked by other people. What stops them from doing even worse is the fact that other countries also have power, and thus kind of compete with them. If a Washington or say a Mountain View boy gets uncontrolled and unchecked power, this might quickly make them about as bad as the boys in Moscow and Peking. Hence the need for making the power of the AI not simply available to, but controllable by a big enough number of players.

Also, the AIs that the typical smartphone user needs have to have a big base of facts and some logical abilities, but does not need logical power and depth that vastly exceed the abilities of the average human. Almost all humans will be neither able nor in a need to formulate questions or tasks that require such a power. What needs it is the development performance required for achieving the Singularity. Developing AIs of that grade will be costly and the market for them has few, albeit rich buyers. So, the development of such AIs will surely be done in a narrow circle, and they will be as unavailable to the majority of the people as if they are being developed by the boys in Moscow or Peking.

Finally, good guys winning the AI race might cost the bad guys practically everything they have. Some of them might prefer a mutual destruction - eg. they might start a nuclear war. This possibility is examined in more detail in the previous parts of this analysis, and an attempt to suggest possible solutions will be made in a part that will follow.

I can't imagine an intellect like Ray missing these considerations, and if he knows them, I don't understand that position of his. It might be that I am wrong. However, this logic is supported in other ways too (see again the previous parts of this analysis), and so far I haven't found convincing counter-arguments.

POSTED 1 YEAR AGO #



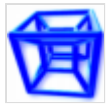
el dras
Member

@alex.stremsky

Good post.

Einstein said he could predict which students would go furthest by their questions on epistemology.

those who thought about it would break new ground (the others were content being clones)

 POSTED 1 YEAR AGO #


mark antony
Member

The Singularity Race

They are the Race of Immortal Cosmic Beings. *I'm not saying they're Aliens..... but they're ELians*
the Celestial Civilization of -**EL** Everlasting Love, **E**ternal Life **E**thereal Light

POSTED 1 YEAR AGO #



alex.stremsky
Member

Please accept my apologies for the long delay.

An oligarchy appropriating the Singularity benefits is the biggest threat to the future of the humankind at this stage. It appears to be the only development able to block the civilization development for thousands of generations, and / or to decrease irreversibly the broadness of its thesaurus by magnitudes.

However, it is not the only undesired development at this stage of the progress. There are other ones that can decrease significantly the width of the civilization thesaurus. There are also obstacles that might delay the advent of the Singularity, and / or direct it in less than benign hands.

Losses of thesaurus width

The loss caused by these developments will be much smaller than the one caused by a Singularity oligarchy, and usually will be reversible to a degree. However, gaining the lost back might need big reversions in the thesaurus evolution, and even then might be incomplete. Also, the combined loss from several of these losses might be close to that from an oligarchic development. So, it is wiser to know them and do what is possible to avoid them.

Globalization gone wrong

The globalization brought to the humankind countless benefits. It enabled the exchange of advancements and technologies between different cultures, increased greatly the advantages of scale, created markets that financed new developments, improved the mutual understanding, connected people, gave them choice of society and culture etc etc. However, it can also create problems before the civilization progress and development.

On connecting cultures can merge, creating new and richer ones. However, they might clash instead, with one destroying most of the other. (This does not necessarily mean clash between peoples. For example, the bearers of one of the cultures might just abandon it for the other.)

Cultures are thesauruses. Merging them without losing some part is practically impossible. It is a form of information processing, which is a dissipative process. You can't do it without increasing the overall entropy – in this case, discarding some of the info. However, in the real life the losses are usually far larger than the minimum needed to sustain the merging - that is, we have unjustified and eventually harmful thesaurus width loss.

Hence the need of doing the globalization in a right way. If cultures are not connected, the benefits from their hybridization are lost. Also, with the time they will tend to drift apart, which will make connecting them in the future harder and will increase the minimal needed thesaurus width

loss. A clash will cause loss of width too. What loses the least from the thesauruses, thus producing the best results, is a smooth connecting - one that keeps parts of the cultures as unaffected as possible, and creates between them a continuum of mixes.

Is the current process of globalization going this way? During the last several decades there are significant efforts to create multi-cultural societies, which is by essence an attempt to preserve the cultures richness, or the thesauruses width. However, these efforts still fall short of the best possible, and often try to achieve their objectives in a way that provokes some kind of culture clash. Also, during the last years we see a lot of inter-culture fearmongering and scarecrow painting. This pushes us towards social monocultures - that is, separation of the societies / thesauruses. Where civilization thesaurus development is concerned, not only we often do the globalization in a suboptimal way, but currently there is a tendency for worse.

Another globalization problem is the survival of smaller cultures. All modern societies, together with their cultures, are built on economics. This makes them subjects to the scale economy law, which eventually leads to thesaurus aggregation. It puts the smaller cultures at disadvantage and entices their bearers to abandon them and join the larger and more successful ones. However, the preservation of cultures is to the humankind thesaurus what the preservation of species / biodiversity is to the life on the Earth. Currently it might be impossible to convince people to completely preserve some smaller cultures (including to live in their ways etc). However, it is possible to document these cultures as extensively as possible, and restore them in some way when that becomes possible.

Lack of knowledge distribution

One of the richest and most important sectors of the civilization thesaurus is the detailed knowledge, as opposed to the general knowledge. It can be defined as the facts and their relations that are usually taught in the higher education, or known mostly to the experts. At micro-level it is the most diverse part of the civilization thesaurus, and thus the most important for its short-term development.

It usually does not appear endangered, as it will be very hard to lose it completely, at least at this stage of the civilization development. Even the most obscure of its elements will always be known to some pundit. Also, projects like Wikipedia create huge body of freely available knowledge, which gradually widens from the general to the detailed one. However, this appears to not be enough.

Just being available does not make a knowledge element useful - being integrated in our knowledge system and having relations with other elements does. Being able to access the element does not mean being able to create its relations, which are usually more useful than the element alone. And the real wealth of relations (that is, their thesaurus width) comes not from just having stored as many elements as possible, but from having many different and sometimes contradicting and incompatible sets of relations for the same element, each set being supported by different entities. Currently we have only one way to achieve that - by teaching this knowledge to many different people who perceive it in differing ways.

Teaching knowledge from this sector to many people depends on the availability, the attractiveness and the diversity of the higher education. Different countries fare differently at this. If the higher education is not readily available to a part of the population, this limits the knowledge spread. (There are initiatives around this, eg. making university courses freely available over Internet. However, this model might be unsustainable at the long term. It also might give poorer results than the classic university studying. Finally, by far not all people can afford the time and efforts to learn a good university course, even if it is freely available.)

Giving high education to as many people as possible is important also for the process of achieving the Singularity. As Ray Kurzweil noted, the progress constantly destroys low-education jobs and creates high-education ones. Not having enough of educated specialists first drives the

development costs up, and then might delay the development even if the higher costs are paid. Also, the increasing speed of development obsoletes the technologies faster and thus requires more frequent educating of the people.

Losing / not developing art products that include less used thesaurus elements

Art is of huge importance for the human progress. We often pursue not the advancements that are most easily achievable, but the ones we find most attractive. And the art is what convinces us in their attractiveness. Our development might be directed by our art more than by its own internal logic.

Like the cultures, the art pieces and tendencies are elements of the civilization thesaurus. The scale economy law and its aggregation effect is usually believed to be less valid on them, since the art creators have a strong incentive to diverge. However, creation is only one of the two sides of the art. The other is its consumption, and the art tastes of most people are influenced by the aggregation effect. An art piece that differs too much from the common taste-determined mainstream can be shunned by most people, or even be beyond their understanding, and thus unable to find enough users to sustain over the time. So, rarely used thesaurus elements might be lost from the art, and the art often is the only place that harbors such an element. Exactly like with cultures, this can also lead to unjustified loss of thesaurus width.

Other lines of thesaurus width loss

Culture, knowledge and art are not the only civilization elements that are governed by these rules. Every other civilization element - technologies, memes etc - does too, and is also a possible line of thesaurus width loss. So, they can be easily analyzed in the same way as the cultures and the art, with the same conclusions.

Obstacles before the Singularity

The Singularity is probably the most disruptive event in the history of the humankind. Every human being has to gain from it more than anyone can imagine. However, not everything that it and its advent bring is to the taste of everybody. There are also random factors that will weigh against it. Finally, there are entities who will lose from it more than they will gain.

Many tendencies can put obstacles before the Singularity. All of them are eventually forms of inability of the current civilization thesaurus to keep consistent at higher progress speed than it is accustomed to. (Measures to solve this problem might be discussed in another post.)

In a multi-polar world these tendencies will not be able to prevent the Singularity - almost none of them will affect all race participants. They also will not be able to delay it for long, for the same reason. Some participants might delay their own Singularity-bound developments, but others will not. If the frontrunners slow down, the next ones will overtake them. Even if all states undertake a coordinated legislation and enforcement against these developments, the Singularity will be achieved by underground entities with no more than two or three decades delay.

Is that good news? No.

Different race participants will use the benefits of the Singularity in different ways. In a democratic and free country, all or at least most of them will be made available to everybody. In an authoritarian country the situation will probably be very different: the ruling oligarchy will keep almost all of the benefits for itself, and will give almost nothing to anyone else. If a powerful criminal organization controls these benefits, the situation will be even worse - but still not as bad as if they end up in the control of an Islamic State-type terrorist organization. So, who will win that race is important.

The civilization thesaurus usually develops with greatest speed and biggest width in free conditions - democratic countries or entities with similar social structure. That is why in a long-term progress race they are the most likely winners. However, if they delay enough their Singularity-bound developments, the leadership in the race will pass to the authoritarian states, or to corporations that work in this direction illegally. Even if the states succeed in suppressing all known race participants, the leadership will just end up with the criminal and terrorist organizations.

The rule is simple. Delaying the Singularity for a longer time is impossible. If an entity tries to do that, what will happen instead will be redirecting it to some other entity. And the bigger is the delay, the worse the race winner will be.

(That is why attempts to delay the Singularity might be initiated and secretly assisted by entities who will benefit from them. Some Singularity race entities might continuously invest significant resources to turn public sentiments and centers of power in other entities against the Singularity, in order to push them into limiting their Singularity efforts, or even into making anti-Singularity moves. This is especially valid with states: authoritarian states will almost surely try that against democratic ones. The democratic states are more vulnerable to this kind of attack - the authoritarian ones should be very stupid to not go for it.)

Misdirecting the Singularity

If an authoritarian state wins the Singularity race, nobody will live happily. The world population will be oppressed in ways and to a degree we have never seen before. The ordinary citizens of the winner state - too: authoritarian ruling oligarchies are more afraid of their own citizens than of anyone else. Even these oligarchies will lose - a Singularity environment will push the competition between their members to the extreme. Most of them (maybe all but one) will be obliterated. The winners will get a world without joy and will have to maintain it stagnated in this way, or will risk being disrupted and displaced. In short, this is one of the worst variants of oligarchic Singularity.

Authoritarian countries usually control far larger percent of the resources and the product of their countries and economics than the democratic ones, and thus are more able to concentrate their resources into specific goals. They may also benefit from maintaining greater secrecy about their progress – they can hide, exaggerate and/or otherwise mispresent it, according to their needs at the moment. However, they often have hard time recognizing and recruiting talent and retaining its loyalty. Also, concentrating resources typically achieves quick development, but in a narrow thesaurus area - that is, the development cost soon starts growing exponentially. So, in a longer-term technological race they usually lose, except when democratic countries slow down themselves.

Even if authoritarian countries don't participate in the Singularity race (as noted in previous posts, at least two do), the world currently sees a rise of the number and the sophistication of the terrorist organizations. Some of them control territories, have big budgets and might be able to recruit some ideologically predisposed and / or ethically flawed talent. They also often have supporters in unpredictable places and might be as skilled at stealing information and technologies as an authoritarian state. They usually aren't considered to be Singularity race participants, so they might be able to go under the radar even if they are deep into the race. Also, even less than complete Singularity-level technologies might be able to produce devastating terror, if not countered by widely available technologies of the same level (and possibly set), and that will probably attract the terrorists. So, delaying the Singularity advent long enough creates opportunity for some terrorist organization to achieve huge destruction. A visionary and ruthless leadership of such an organization might be able in these conditions to even win the Singularity race.

There are also the big criminal organizations. Some of them have billions, de facto control territories and know well the value of the technological advancement, having used it for long for doing crimes and / or avoiding the law enforcement. And some have connections, intelligence and corrupting influence rivaling that of state entities. If the Singularity is hampered by worldwide legal means, they might be the

only ones able to circumvent these. Everyone who needs Singularity-level technologies will have to deal with them, and they will be the only employers for talent in Singularity-enabling science and technology. As a result, in some situations they might be able to reach first the Singularity.

Some extreme conditions might turn into a danger even a typical high-tech corporation, scientific institute or other similar race entity. An example could be a legislation that strictly prohibits the Singularity seeking, prompting the entity to do it in deep secret. (That will make it used to violating the law and will create a situation where it can easily be pushed into the corner, prompting it to forego ethics and responsibility.) Another example might be social customs or moods that reject key Singularity elements, and thus force secrecy around their development, to the same effect. Yet another might be extreme legal protection of corporate affairs, making the state(s) incapable of controlling corporations that are into this race - unchecked power is an enemy of good.

(In many big corporations managers have almost unlimited power over the intra-corporate existence of their subordinates - positions, duties, salaries, benefits, privacy etc. This makes these corporations close in many social aspects to an authoritarian state. If left unchecked by the legislation of a democratic state, they might be as prone to creating a Singularity oligarchy as an authoritarian state would be. Even if their initial attraction to the Singularity is completely benign, it would easily evolve into what stems from their social structure - see the analysis in a previous post.)

Ways of delaying the Singularity

It is often believed that nothing can change the speed of the humankind exponential development. However, the math formula for the upwards part of this development has an exponentiation factor, on which the form of the curve - that is, the speed of the development - depends. Many elements contribute to this factor - amount of investments (money, talent etc), social preparedness, amount and strength of roadblocks, thesaurus width in this area, etc. Changing them changes the exponentiation factor, which leads to speeding up or delaying the Singularity.

There are many reasons to want the Singularity advent as early as possible. Minimizing the loss of thesaurus width - human lives are only a small part of what is being lost every day. (The losses may appear relatively small but, being pre-Singularity ones, they will be harder to recover later: the Singularity is a natural cusp in the backtracking of the development process.) Bringing faster end of many causes of human suffering and implementing sooner our dreams. And probably most of all, keeping the Singularity control from falling in the hands of malicious players, which is only possible by outrunning them and spreading the Singularity-enabling technologies as widely as possible.

Speeding up the Singularity is however a tricky thing. Most of the apparently good ways to do it have severe drawbacks - for example, trying to concentrate efforts and create a "Singularity for the enlightened", and then to gradually spread it over all or most of the society might result in a Singularity oligarchy model instead. Some of these drawbacks are counter-intuitive to the degree of being overlooked by most analytics. Overall, it appears that all good ways to speed up the Singularity are enormously costly, and relatively small resources or even random flukes might abort them.

Happily, this characteristic has a back side. There are factors that can delay the advent of the Singularity by years or even decades, but it will take about as huge resources as speeding it up. And even if applied, they can be defeated by relatively small resources, if these are used properly and wisely. Some of these factors are objective, and thus are constantly present. So, knowing the delaying factors allows overcoming them with the resources the Singularity community has or will have in the near future. In fact, most prognoses on when we should expect the Singularity advent assume some delay due to these factors, so overcoming them will be in practice speeding up that advent.

Lack of social preparedness for controversial results

The coming of the Singularity needs the presence of many factors. (These are called here Singularity-enabling factors.) A very important one is the preparedness of the society.

Some of the Singularity results are controversial or even impermissible by the traditional standards of many societies. For example, technologies that allow easy changing of sexual preferences and/or gender might be rejected by certain confessions. Powerful enabling (cure for cancer, big life extension etc), if available for a long time only to some people, might stoke a destructive social unrest... Such developments might lead to social rejection of and measures against key Singularity-enabling factors.

The society must be prepared to accept these developments, and the speed of that preparation is limited by social factors. Increasing it quickly might require much larger resources than any other Singularity-enabling factor.

Rejecting key enabling factors might severely delay the Singularity. Workarounds exist, but might be much harder to implement in practice than is usually thought. To sum it, insufficient social preparedness for the results that Singularity brings might delay / misdirect it, even if all enabling factors are available or within easy reach.

A development speed higher than the society adaptation speed

Even if a Singularity result is generally acceptable to the society, this does not necessarily mean that it can be integrated immediately in everyday life. The society must have time to adapt its functioning to the new developments.

The closer is the Singularity, the faster is the progress - but not the speed of the society adaptation. The social structures might find increasingly hard to integrate some progress results. Preparing the society for them faster might require huge resources - much larger than eg. the creation of powerful AIs. An unprepared society might sideline some Singularity developments and / or limit their effects, resulting not only in a delay, but also in a thesaurus width loss.

Even where developments and products are socially acceptable and not sidelined, introducing them too quickly requires a lot of resources to keep with. Many entities will seek ways to maintain a slower pace. People might skip buying newer and better gadgets if their current ones feel good enough, to avoid retraining time and efforts. (Some people already refuse to use newer high-tech products even if received for free.) This might turn such products into market flops, and thus undercut the investments in progress. Companies who are forced to go fast by the competition pressure might cartel in order to limit the progress speed in their market segment. States whose institutions and legislation are obsoleted too quickly might legislate limitations to some advancements, or even to the progress in principle.

Hurrying up the wrong way

High-tech oligopolies might produce fake progress products (eg. "upgraded" interface with the same or even downgraded real functionality). These cause among the users a backlash, often mis-directed against the progress in principle. Some progress products might violate the privacy and the civil liberties of the users, to the same effect. Even if the producers don't intend it, oligopoly products often have low quality and security, and this might be exploited by malicious players, again with this result. The longer the widespread backlash has been avoided, the stronger the abuse will become, and the stronger will be the mass reaction to it, once it gains momentum. Such a reaction might swing the social pendulum far into the anti-progress zone.

Progress products that disrupt powerful players might raise their Singularity awareness. For example, strong protection and/or easy change of identity might disrupt the modern law enforcement. Technologies that save on energy (eg. completely immersive telecommuting that replaces travel) might severely undercut the profits of some energy producers. Quantum computing for personal use might tread on the toes of security

agencies and cloud services companies. These and other developments might turn influential centers of power against the progress, which might complement the social backlash.

Legislation problems

As of the middle of 2016, there already is fearmongering against powerful AIs. It will only strengthen in the future, fueled by different interests. Power holders might try to block AI development to avoid being disrupted. Singularity race participants might try to limit its usage (and officially even its development) to create a Singularity oligarchy. Workers who can be replaced by AI might act against it to preserve their jobs. Law and peace enforcement institutions might not like the idea of powerful AI at the service of their enemies. When combined, these interests might be able to introduce a legislation blocking the development of powerful AIs, especially of non-specialized ones.

Another important Singularity-enabling technology - self-reproducing automata, nanobots or engineered microorganisms - will also face similar fears that might lead to legislation against it. Yet other key Singularity-enabling technologies or other thesaurus elements might also be legislated against.

Insufficient resources

In the democratic countries the technologies and other thesaurus elements leading to the Singularity are developed mostly by private entities. (There is also development by state entities, but most of its results are usually classified and thus unavailable to most entities who would build upon them.) This makes their progress dependent on the market conditions. Bad marketing or widespread mistrust can decrease the return from the products, and consequently the investments in creating and developing these thesaurus elements.

Big economical crises might also undermine these investments. They can also hamper the financial resources that the race participants might like to direct into such a development. So can any big endeavor that consumes a lot of the society resources, eg. a war.

Excessive secrecy

The progress is a process of building new knowledge, technologies and other thesaurus elements over the existing ones. If technologies are classified for intelligence, defense or any other reason, they are available only to a small percent of the potential builders. This decreases their availability to the progress and ultimately decreases its speed, thus delaying the Singularity. (Another way to define their decreased availability is "limiting the thesaurus width at the current level".)

Pushing such a secrecy too far also increases the risk of mis-directing the Singularity, as it increases the probability that an authoritarian country will win the race. Their key development institutions are usually already classified and thus easily cleared for access to Singularity-related developments, while in democratic countries often only a small part of the resourceful and interested entities will have access to classified Singularity-related developments. So, classifying in a democratic country some development gives it some protection, but also severely limits its availability to build upon, and thus delays the development. Outside of a war the second factor usually has the stronger effect, especially in longer term.

Arms race and/or spying paranoia very probably will increase the secrecy around the Singularity-enabling technologies and knowledge. After the Singularity awareness increases enough, it might provoke itself such a secrecy. The closer the Singularity comes, the greater is the probability for this development. (Which in some aspects is the perfectly undesired way to go, as it also prevents creating trust and links between the race participants. At the final pre-Singularity stage, the lack of trust and links might be a cause for military conflicts, up to a nuclear Holocaust - see previous parts of this analysis.)

Runaway intellectual property rights

The IP rights are a key legal invention of the humankind. It allows the creators of intellectual product to have remuneration for their work, and thus opens the door for industrial development of such products, which speeds up the progress. However, the overprotection of the IP rights can be as bad for the progress as the lack of protection, or even worse - especially in a pre-Singularity environment.

Unlike the classical property, the intellectual one is inherently monopolistic. If another person owns a house, building your own house to its likeness is not stealing from her. However, if another person owns a technology, copying this technology without permission is stealing from her - an intellectual product can have only one owner. (In fact, copying another person's house is not a theft of that house, but might be a theft of IP rights.) In a free economy and market, a monopoly is the the worst that can happen - it is their killer.

The creators of the IP rights idea pointed in their motives that the monopoly character of these rights puts the interests of their owner directly against the interests of the society - and that the interests of the society should take precedence. That the IP rights should be protected only for a short initial period, to give the creator the opportunity to return his/her investment and have some profit, and then should be available to the entire society.

However, no idea is useful forever. Nobody uses anymore catapults, steam engines or phonographs – so, the technologies to build them are past the end of their life. It is irrelevant anymore whether these technologies are legally available to the society or not, exactly like it is irrelevant if a person is free or not after they have died. So, the IP-covered notions should be available to the society while still being useful and in usage, during their life.

There is no universal agreement on what percent of the life of an intellectual product should be protected to the creator, but it clearly should not be all of its life, as this puts the product in practice under an eternal monopoly. This directly contradicts the very idea that underlies the existence of the IP rights.

As of the second decade of the 21 century, the life of many new technologies is comparable with the patent duration (20 years under most legislations). In the fastest-developing, high-technology areas, eg. in the software field, the average life of a technology is already less than 20 years - that is, most new technologies there are effectively under an eternal monopoly. The further the progress advances, the more of the human civilization / thesaurus will belong to the high-tech area, where the IP life is shortest. Separately from that, the increasing speed of the development will shorten the life of all technologies. (And of most other thesaurus elements that can be intellectual property, eg. pieces of art.)

In addition, in the high-tech development we sometimes meet a "roadblock technologies", for which it is extremely hard or even impossible in practice to create alternatives. All development in that area can be controlled by the owner of such a technology - that is, they receive a monopoly over the development there. Circumventing these roadblocks is only possible through a different group of technologies / thesaurus segment, that is developed comparably with the one being circumvented, and such groups of technologies are rare. (This is one more argument how important is to preserve as much thesaurus width as possible - and one more example why limiting the thesaurus width plays in the hands of the Singularity adversaries, and might be targeted by them.)

At the same time, the need for legal protection of the IP rights decreases with the increase of the development speed. As of 2016, a leading technological company that does not upgrade a significant part of its technologies portfolio for just a couple of years often risks falling behind the competition. (Couple of years are often enough to develop competing technologies.) Even more importantly, the time its competitors need to develop a competing technology is often comparable to the time they need to implement a stolen one. In other words, what keeps to greatest degree the business investing in development of new technologies is not the legal protection, but the pressure by the competition. (In

fact, the IP rights are increasingly used not for creating a product and making a profit on it, but for suppressing or blackmailing the competition and achieving de facto monopoly.)

The problem is exacerbated by the ineffectiveness of the current IP rights system. For example, patents have been conceived as strictly inapplicable to pure ideas, but many countries permit software patents, and most of these cover nothing but pure ideas. Also, in practice it turns out easy to patent things that should not be patentable (eg. structures or processes met in the nature), and hard to cancel these patents. Finally, the high IP litigation cost introduces into reality the principle that the (financial) might makes right, and thus limits the incentive for development and creation of intellectual (and any other) products - the closer the Singularity, the stronger.

For all these reasons, the duration of the IP rights protection should best be decreased while approaching the Singularity, to prevent delaying it. Ideally, at the moment of the Singularity it should be practically zero. However, what we see currently is rather the opposite. The duration of the IP rights is being increased periodically, to a degree that gives an "escape velocity" to the rights over some intellectual product lines. (When the IP rights of an intellectual product, eg. technology, expire, it is already dead. When the rights over its successor expire, it will be dead too, etc. Thus, the potential competitors are unable to even step on the road to becoming real competitors.)

Also, more and more thesaurus elements are being covered by IP rights, risking a gradual shift to an "IP rights feudalism" - establishing an economy where most profit is generated not through work, enterprising and innovation, but through renting an indispensable property to those who work, enterprise and innovate. (This tendency is already seen in the "non-practicing entities", also pejoratively called "patent trolls".) This moves a lot of the profit out of the hands of the entrepreneurs and the inventors and leaves the development increasingly underfunded. It also directs some best minds away from development and into ownership business, thus depriving the development from talent. All these severely limit the development speed.

This also increases the probability for a pre-Singularity rights lockup between two or more IP rights owners (each having some key Singularity-enabling technologies, and not willing to license it to owner of other such technologies who might thus collect all pieces of the puzzle). Such an event might delay the Singularity by decades, which almost surely would direct it into less than benign hands.

It is true that the misuse of IP rights is not too widespread, as of the middle of 2016. However, it already plays an increasingly strong delaying role through the chilling effect. The increased risk of litigation about IP rights makes the usage and building upon front-end technologies increasingly risky and thus costly endeavor, especially for smaller companies - and their group has the greatest potential for such developments, as their big number and diversity makes the most of the thesaurus width in the area of the technologies development.

Closed technologies

There is a saying that the person who contributed most to the existence and the richness of the open source software is Bill Gates. It is usually considered a joke, since Microsoft is perceived as an enemy of the open source, but carries an important truth.

The first versions of MS-DOS and Windows were almost as opened technologically as the UNIXes, and had nearly as complete and easily available documentation. At the same time, they reached magnitudes of users more than all UNIXes together. Thus they gave to much more people the opportunity and the lure to work with software and OS, hack at its internals and understand how exactly all of that works. That in turn produced a big and highly competent software workforce. It created and/or enriched most currently used software, both open source and proprietary.

Had these early versions of MS-DOS and Windows been as closing their internals away from the users as the modern versions of Windows, MacOS or even Android, they would attract many times less tinkerers and curious minds. (Also, digging into the internals of these OSES is often illegal, so some of the attracted would acquire taste for illegal activities.) Consequently, that workforce and its competence would be smaller by magnitudes. So would be the software we have now, in quantity, quality and degree of advancement. The AI software would come later and at higher cost, and the market for the AI products and most other Singularity-enabling technologies would be far less developed now... In short, the openness of our technologies is of key importance to the speed of our progress.

The real resource that is being invested in the progress is knowledge - money just buy it. So, decreasing its spread limits (and makes more costly) the investments in the progress. This decreasing comes in many forms:

- closing the access to product technologies and decreasing the "hackability" of the products
- limiting the access of some information to communication (eg. Internet) that prevents the spread of it
- military, state and trade secrets that block the wide access to key knowledge.

The list is by far incomplete.

How do we fare at this? Currently there is a strong trend to decreasing the availability of the internal workings of most technologies to their users. Some of the causes are objective, for example the size of the code base for most modern software and the degree of integration in a modern semiconductor chip. However, the single biggest cause behind this trend are the interests directed at blocking the competition, hiding from the users functionalities they may object to, preventing the evaluation of the product quality in depth, etc. All of these eventually delay the Singularity through the described mechanism. (They also have some effects that prevent delaying the Singularity, for example hiding the usage of technologies that otherwise would be unavailable due to excessive IP rights.)

The main negative effect of this trend is the decrease of the numbers and competence of the incoming high-tech workforce. Even where its members have real knowledge, it is often fragmentary enough to be good only at solving problems limited to a narrow area, This decreases their ability to integrate across technological areas, create products hybridizing different thesaurus elements, compare groups of technologies that have similar application but different base, etc.

Aggregation effect in economics

An economics needs companies of all sizes - small, medium, large. However, there is some optimal ratio between these types, at which the economics is most productive. It differs in different situations, but is usually a form of Gaussian curve: the mid-sized companies should be the biggest portion of the economics.

The scale economy law however means that companies will merge or buy one another to increase in size, in order to gain competitive advantage. Thus, the company size ratio gradually will be distorted towards the bigger ones, and bigger means fewer. Eventually this will decrease in some key business areas the number of the companies that do most of the business to effectively an oligopoly, sometimes even to a monopoly. This might limit or even destroy the market freedom in these areas, and thus the base of the development in them. The result will be a delay of the development in these areas.

The aggregation process is especially fast and strong in the key Singularity-enabling areas - AI development, Internet providing, the entire IT branch. For example, in USA the development and manufacturing of CPUs, the OS development, the Internet providing, the search engine

business etc. are monopolies or tight oligopolies, and despite the anti-cartel regulation efforts this already reflects on the speed of development in them.

The emergence of a company that holds a lot of the market in a segment often creates the so-called market leadership. Market leaders are able to impress pseudo-cartel behavior on their market without any agreement between companies, and even without targeting it - just by their sheer weight. The result is again a loss of market freedom, and in extension of development speed.

Market leaders in high-tech business often discover also another effect. The aggregation of the customers around the most accepted is especially strong there. The faster technological development by the market leaders does not attract the customers to them as strongly as in other business areas - but the inability of the competition to duplicate their products, or achieve interoperability with them, does. In other words, attracting and keeping customers with quality and speed is the costlier alternative to the market leaders. The cheaper one is "playing dirty" - developing technologies designed not to satisfy the users but to keep the competition behind, "arresting" clients in "walled gardens", abusing IP rights to block competitors efforts at developing technologies and achieving interoperability, etc. The victory starts going not to those who run faster, but to those who trip the others... This also delays the development and the Singularity.

Powerful opponents

People in power often believe that a high position is more important than progress achievements. Also, there are entities that will lose because of the Singularity more than they will gain, some up to ceasing their existence - corporations, states etc. Most of them are quite able to defend their interests despite consisting of people who will gain from the Singularity more than they will lose. And some of them have enormous influence.

Even if pooled, their resources will not be able to delay the Singularity by much. However, this might be enough to mis-direct it into malicious hands. Also, most of the developments listed above might add to their power, or to give them convenient leverage against key Singularity-enabling factors.

Summary

A race has many aspects. At first glance, it is all about who wins. However, an unfair victory is often worse than a loss, especially in leadership races. A bad leader is a disaster for the entire group, including himself. For example, a bad CEO can bankrupt his company and thus destroy also his own job. When the race is the Singularity one, the group is the entire humankind.

Given the diversity of the Singularity race participants, a delay in the speed of some will inevitably mean not a big delay of the Singularity as a whole, but pushing it into the hands of others. And that will probably be the worse outcome. In unrestrained conditions, better societies usually progress faster than worse ones. However, if the better societies are tricked into limiting their own speed, worse societies and/or malicious players might win the race.

For this reason, one of the best things the Singularity community can do is to counteract the possible causes for Singularity delays.

POSTED 1 YEAR AGO #

Singularity is an event horizon, at which we cant predict what's going to happen next.
We're obviously approaching that, by numbers of breakthroughs.



eldras2
Member

There are some stealth projects.

AGI conferencing deals with stand alone ones.

We're inside the Singularity, and this may be the best.

POSTED 1 YEAR AGO #



GreenDocNowCiv
Member

AI,

Two rebuttals, and one kinda "yup" -

One is directly related to eldras's point, above - that the Sing is not truly understandable, in theory. That's part of the reason the name was used by Vinge originally. An asymptotic point in like infinity; we can use the term, but we don't understand what experiencing it will be like. As such, it seems incredibly unlikely to be directly related to our simple primate related psychological issue that affects every society we are aware of- namely, "I'm the alpha male/female/monkey of either gender (but usually male, if a monkey, due to gender size differences). No AI Capone, Hitler, Stalin, Pol Pot, or Prof Guzman (Peru's "Shining Path" Guru).

Two is that when you rebutted my version of Rays explanation of why he thought the "good guys" would win, you didn't rebut it. You just expanded the "bad guy" population from a small population, to a larger group by including lots of bad people around the world. OK, but that still doesn't take the bad guy number to a problematic enough point. This is probable if you recall that the version of Rays answer I used was that much of the worlds population would get AI effectively as soon as some "Dr. Evil" did.

Now, please relate that to your point that some of the worlds population that got advanced AI be evil. OK, yes; but consider society as a whole, and Rays point holds firmly. Most peeps are not psycho monsters, or even simple vandals and rapists. That's a small minority.

The rest are the majority. They range from slackers, to drones, to eager beavers to hard chargers. The majority lean to meaning well, or are kina intended to good living, or are really dedicated to meaning well. That's essentially Rays reason for security: the good much outweigh the bad.

Your fear tale is similar to a critique we can all direct at many old Sci Fi plots, on screen or in books. They use variations on one basically flawed old sci fi plot - old tech world with some whiz bang advances, like lots of space industry and a peaceful world civilization with no wars. Then some evil genius takes over. Sound familiar?

Much like all older, pre real AI sci fi, they don't incorporate what most of us assume will be a really "everybody linked to AI" world. In that same way. you have not accepted Rays point that much as just some Apple iPhones have Siri, later all smartphones will have "super-Siri's."

Is Ray right? Well, it makes sense to me, certainly. Why would most peeps turn off a really helpful personal assistant, tutor, and considering the qualities we can easily imagine in a "super-Siri," kinda friend? Most wouldn't. And those very advanced AI's will be using super duper fast communicating every day, probably more than once a day, to keep up with ever accelerating AI advances.

The more you think about it, the more likely Rays Sing prediction looks. But your concern still applies from now up to the Sing. As AI advances, someone like Putin or the Chinese boss or bosses certainly could use ever more modernizing tech to crash our IT infrastructure, first strike

our military, accept devastating hits on their countries from us, and being more bloodthirsty and hitting first, and using modern tech to plan and hit, have a good chance of winning. Going from a non-Sing, but advanced and pre-Sing time like now and up to the Sing, all your bad news could certainly happen. That's the "kinda Yup" part.

POSTED 1 YEAR AGO #



someday69

Member

bump, I just want to be able to find this thread, so it'll go back to the top...

POSTED 1 YEAR AGO #



someday69

Member

again I just want to find this thread, I still haven't read it all....and I really like it..

POSTED 1 YEAR AGO #



alex.stremsky

Member

@eldras2: I do not agree that we cannot see beyond the Singularity. Our vision there is definitely limited. However, the laws of the nature that we already know will continue to be valid there. Some of them determine what is logical, reasonable and favorable, and what is not. Using them as a base, we can see a number of things beyond there, some of them being the answers of questions that trouble us now. This might be the content of another post of mine, maybe in a different topic and forum.

@DevilDocNowCiv: I believe that the standard viewpoint over the Singularity aspects of control, good and evil has some deficiencies. They are one of the reasons that prompted me to write the posts in this topic. The logic that makes me think so is laid out in the second post of mine. Could you please point me to the errors in it?

I believe that the danger from being attacked by an autocrat does not increase significantly if he has high technologies, developed by us openly. It comes much more from him feeling walled away from the Singularity, and thus cornered. This will make the typical autocrat believe that he has only one choice left - to start a nuclear Armageddon, ensuring that not only he will lose, but everyone else too. That is why even entities like Russia must be in the Singularity effort to a sufficient degree. What is that degree will be discussed in the next post of mine in this thread.

POSTED 1 YEAR AGO #



alex-- I've been reading this forum for more almost ten years, and this is one of the best posts I've ever read...yes there are some very clever poster's here, some have come and gone, yet you are really something the way you can piece together what happens around the singularity,,

someday69

Member

I only wish I could have the insight you seem to show us. Any way I love the idea that there is different levels of higher intelligence..And that between these levels there are gaps. And in the process of transferring the information from the higher to the lower, and visa versa there is a loss of info. This seems like the way neurons process signals too...

Have you ever wondered if we are in a post singularity simulation? One that was started with a small group of oligarchs. And now that they realize their mistake they are using simulations to find what they lost.? Something like that anyway,,I'm not as able as you,,So I can see the idea, yet have a hard time expressing it. What if there are Gods over us here on earth, in this simulation, That are holding us back from OUR singularity...As in"": ""::

Let us go down and confound their language, for they all speak one language anything they imagine to do will not be held back from them.. --- tower of babel....

POSTED 1 YEAR AGO #

**alex.stremsky**

Member

Whether we live in a simulation or not is a popular philosophic question. I currently believe that we cannot answer it reliably, or this will be extremely hard, for several reasons:

- The world that we perceive is just a simulation of the real world, created by our brains from the electrochemical signals coming from our receptors. And it is incomplete and imperfect one, to start with. This will decrease the reliability of our evaluation about whether the real world is a simulation itself.
- The term "simulation" denotes a rather complex thing, much like eg. "personality". It is senseless to ask exactly which one of our brain cells contains our personality: different aspects of it are found in different brain parts, sometimes overlapping and/or depending one on another. The same might be valid about the simulatedness of our world.

Also, for all practical reasons we currently have, it does not matter whether we live in a simulation or not.

We, and the possible Gods who would simulate us, are examples for organized systems. The organized systems in turn are examples for sets of information that is internally related in some way. (Due to not knowing a better term, I call such sets thesauruses.) Civilizations with different levels of development are thesauruses, and so are neurons and pattern recognizers. So it is only normal that they all will be subjects to the laws that govern the transmission of information, and thus will have common traits.

In an environment that is subject to the laws of dissipation and entropy - our Universe is one - thesauruses behave in certain ways. If the game theory is valid in this environment, as it is in our Universe, thesauruses have certain "optimal strategies". If they are smart enough to understand these, they will use them. And if we are able to understand these, then over-human intelligences surely will be too.

In this light, the hypothesis that we might be simulated by some Gods appears to me possibly convincing in only one case. It is that those Gods had their own Singularity, but lost a lot of thesaurus width / richness during it. Consequently, they simulate an approaching to the Singularity in order to acquire from it some pre-Singularity thesaurus width. That is the only thing that they might lack and we might have, thus justifying such a simulation.

There is however a caveat, described in greater details in the second post. If the Gods base the simulation on their own thesaurus, it will contain only what is already in their thesaurus. And if they build it on elements they don't know and don't understand, they will be unable to understand a lot of the generated thesaurus too. The higher level needs to acquire some of the thesaurus of the lower level, but if there is a

gap between them, the size of the information loss during the transfer between the levels might be prohibitive. Even if the loss is initially acceptable, whatever put the Gods in need for more thesaurus width will most likely continue pushing them, and thus will force them to improve the efficiency of the process. It appears to me that there is only one way to increase it beyond a certain point - to create an uninterrupted spectrum of levels between the two, and to open the opportunity for entities to move up and down that spectrum.

POSTED 1 YEAR AGO #



alex.stremsky
Member

Please again accept my apologies for the long delay.

Close to and after Singularity:

Good, moral and ethics: emergence at a new level

An object is found that bestows immense power over its owner, being created by a powerful dark lord. Despite desperately needing power against the evil, the Wise around reject using it: its power will turn its user into a dark lord too, even if that is one with their wisdom and self-control.

They decide to destroy this object instead, and trust it to a simple person that is furthest from being tempted by its power. However, the closer the object is brought to the place of the destiny, the more its power grows, until it finally overwhelms its bearer. Since this moment, the only hope that it will be destroyed remains in the hand of the blind luck...

This is a re-telling of a popular novel - "The Lord of the Rings". Is there any reason to believe that it can apply to the reality too? At first glance – none. But a careful examination gradually starts finding some disturbing things.

When the first Apollo spaceship flew around the moon and returned back to earth, many science fiction fans were astonished by how many of the facts around it matched well the descriptions in the Jules Verne books "From the Earth to the Moon" and "Around the Moon", written almost 100 years before the flight. The starting place, the trajectory, the approximate size and the form of the ship, even the site of returning to the Earth. Far too much to be just random coincidences... This similarity gave birth to hundreds of weird theories about Jules Verne, the Apollo program etc.

The biographers of Jules Verne knew that he made a lot of calculations (some of them with the help of a friend of his who was mathematician and physicist), in order to describe the flight as scientifically correctly as possible. The only coincidence was that the flight was in both cases started in the United States. That given, everything else was just a matter of calculations. The optimal place for a starting site, the time of the flight, the form and the approximate size of the ship, even the return site – all these could be determined at the time the books were written. The coinciding facts were neither a conspiracy nor a random occurrence – both the fictional and the real event were built on the same scientific principles.

Some of the scientific notions of that time were wrong, and that reflects in the book. However, it had the scientifically correct base, and that allowed it to have a lot of correct predictions. Similarly, when you have the scientifically correct base, you can determine correctly a lot of things about a future development, long before the technologies needed to achieve it are discovered. There is nothing miraculous in it – all you need is stable scientific base and approach.

The religion, though not strictly scientific in the narrow sense of the world, has examined the good and the evil for thousands of years. More of the best minds of the humankind during the last 2000 years have worked in that area than in any scientific discipline. It is not strange that it has amassed a lot of knowledge in it.

John Ronald Reuel Tolkien, the author of "The Lord of the Rings", was a deeply religious person – and not only that. He was an extremely intelligent and curious man, deep thinker with huge knowledge, versed in many ancient languages, cultures and religions. And he had devoted on the matters of the good and the evil a lot of his attention. It is only natural that he has put a lot of sound knowledge behind the notions he uses in this book. A research into the effect of huge powers on the good and the evil is simply bound to produce a lot of similarities with it.

Where the notion of good and evil comes from?

The most primitive notion of good and bad is purely subjective. If I eat you, that is good. If you eat me, that is bad. The most basic principle of one's existence is Popperist: everyone cares for themselves first.

The emergence of species that live in groups required a change of that notion, to allow surviving in these groups. That led to the appearance of sets of rules for survival in the environment of the group. Today we call the set of rules that allows us to survive in the society "moral". By observing these rules, we minimize the risk of antagonizing the others in the society and suffering damage as a consequence.

Life forms, including people, live in groups when they benefit from that. Usually the group fares better, and gives more back to its members, if they do some things for it. To achieve that, groups require that the members of a group should give back, and create sets of rules how that should be done. Today we call the set of rules that allows the society to benefit from us "ethics". By observing these rules, we keep our society strong and it eventually gives back to us more. Giving to it is our way to receive back more than we have given.

The moral and the ethics are emergent properties of the existence in a group. The more mature we become, the more complex and wide our moral and ethics become, by extending our notion for whom our group includes. We already consider immoral and unethical to harm not only our friends and family, but any human being, and even any living being if we don't have a real need to. Thus, the growth of moral and ethics in us creates and enlarges our notion of good. And going against them enriches our notion of bad, or evil.

Individuals and groups benefit most when moral and ethics are in balance: one receives from the group proportionally to what they give to it. If the receiving is disproportional for a long enough time, the dispossessed members of the group might move to another one, usually putting the group they abandoned into competitive disadvantage due to the economy of scale law. Same is valid for groups of groups: eg. a feudal liege that unjustly favors some vassals over other ones might lose the others to a competing feudal of his rank.

The emergence of the moral is possible only in a group of entities. The group must be large enough – in a smaller one relations can be established on personal basis, so the moral doesn't need to grow into defined and established rules. Also, the entities in such a group must be comparable by strength, influence and development – for example, slave ownery does not necessarily develop moral and ethics between the slaves and their owner.

Similarly, the emergence of ethics is possible only if there are several competing groups of entities. If there is only one, the dispossessed members who leave it cannot join another group and give it a competitive advantage. Similarly, a too small number of groups might lead to a kind of 'cartel': the oligarchies of the groups, who are usually distorting the balance of the goods distribution in their favor, might negotiate and unite against their own group members. Like with the moral inside the group, the different groups must be comparable by strength, influence and development - otherwise the migration of individuals between the groups will not change their balance.

If a superior level of development is reached - for example, evolving a new level of intelligence - moral and ethics will have to emerge anew on that level. The moral and ethics carried over from the old level might not work sufficiently well on the new level. (For example, when the humans evolved intelligence, the instincts they inherited from the monkey groups proved insufficient to resolve many of the problems the intelligence brought.) As the emergence of the moral requires the environment of a group of certain size, and the emergence of the ethics requires the environment of certain number of groups, the lack of these conditions means that the new level will be unable to emerge moral and/or ethics.

The Singularity as a game changer

In the past, when we have moved from one level to another, the distances between the levels usually haven't been large. In many cases they were small enough that the abilities of the entities on the old level were comparable to these of the entities on the new level. This helped establishing relationships between entities from the new level and entities from the old level, similar to the relationships in the old level. This in turn allowed carrying of moral and ethics from the old level to the new one.

Also, so far the progress has been rather slow – much slower than the speed of establishing relations and the speed of moving an entity between the levels. Due to this, even if a level was entered first by a single entity, soon enough that level become populated with other entities too. This created on the new level the conditions necessary for emerging moral and ethics, even if they couldn't be carried from the old level.

In our history so far we have almost never seen the appearance of a new level, controlled for a long time by a single entity. Consequently, we are mostly unaware that such an entity will have no base for moral and ethics, and thus for a notion of good. We have had situations partially similar to it. More advanced societies taking less advanced people into slavery, and treating them without a notion for moral, ethics or good. Countries and peoples squashing other countries and peoples due to having superior military strength, and enslaving or genociding the conquered ones. However, even in the worst of these the difference between the “lower” and the “higher” level have been relatively small. We have no precedent where the difference has been huge, and most of us are unable to comprehend what it might be like.

The Singularity changes the strength of these effects completely. Due to its ability to achieve much faster pace of development than anything we know, it can create new levels that vastly overpower the level on which most of the humankind would be. The difference could be not like that between the 17th century Europeans and the Central Africans, but more like that between a human and an amoeba. Such a difference can easily bring to the higher level the means to completely block the entities on the lower level from moving up. Also, the hectic pace of the Singularity might give the higher level an escape velocity – that is, the entities on the lower level might be unable to catch up with the development of the higher one, even if it does not impede them actively.

That is why a Singularity-created oligarchy will be naturally evil, even if it started as completely benevolent. The laws of the development determine that it will not be able to emerge moral and ethics, and thus will not have a base to build the notion of being good on.

(An analogy to this: When the United States of America were created, a group of George Washington loyalists offered him to become the King of the new state. At that time he was enormously popular, and a decision to accept that offer would be overwhelmingly supported by the people. However, he refused, in the name of the democracy.

What would happen if he had agreed? Surely he would be an incredibly benevolent King, and probably at least a couple of generations of his descendants would be too. However, the USA would still be very, very different from what they are now, and the difference would only grow with the time. And it is not hard to guess whether it would be beneficial.)

Matching good and evil from different levels

An important question is how to resolve clashes of interests between different levels.

Using force, or a threat with it, is the simplest approach. However, the emergence of inter-level ethics obsoletes it.

A law-based approach only hides or moves around the logical problem. Law is ideally based on common or maximal good, and good may be different on different levels – that is, they will have different laws, or different interpretation of the same laws.

An idealistic approach might relegate the decision to the upper level, trusting it to be able to provide better solution due to its usually higher resources. However, this is a mistake. The good for the higher level is not the same as the good for the lower level – the two will differ due to the different moral and ethics of the levels. If the higher level tries to find the best for the lower level, it should apply the lower level's moral and ethics – that is, to ask the lower level what it needs, or to emulate it (which is analytically the same). In short, the higher level is unable by itself to determine what is good for the lower level.

An analytical approach might try to seek the intersection of the moral and ethical systems of the two levels, and to determine the mutually best solution based on this intersection. This approach works also for resolving clashes of interests between levels that are similar, but their thesauruses differ. For this reason, the analytical approach appears to be the best available for most of the cases.

When the two levels are different, and especially if the lower level is a predecessor of the higher one, the analytical approach might be biased towards the lower level. (The intersection of the moral / ethical thesauruses of the levels will usually include most of the thesaurus of the lower level, but only a smaller part of the typically bigger moral / ethical thesaurus of the higher level.) As the higher level will usually have also more means to cope with the compromises needed to resolve the clash, this might be the more optimal approach, despite that it might appear to be unjust to the higher level. As an example to this, feeding another person at your expense is not just towards you, but adults usually are happy and proud to do it for children.

A problem here is that the moral / ethics intersection might be too small a part of the moral / ethics of the higher level – maybe small enough for the higher level to consider it negligible. The same problem can arise between levels (or differing thesauruses on similar levels, or even the same level) whose moral / ethics have too small an intersection. In this case, clashes might be impossible to resolve, and the only way to preserve both levels / social thesauruses might be to keep them apart. The contact between them will have to be indirect, through a level / thesaurus (or a chain of such ones) that has big enough moral / ethics intersections with both levels / thesauruses - a "translator" thesaurus (chain).

Is the assisted intelligence a solution?

AI elements can be used to assemble not a completely artificial intelligence, but a powerful aid for the natural human intelligence. Imagine an AI-like system that is designed to augment a human brain. It will contain huge amount of info and will be capable of immensely powerful logic, but will have no internal motivation module and will be incapable of assigning tasks to itself. I call such a system "intelligence augmentation", and a brain enhanced by such a system "augmented intelligence".

Many would consider this safer than the classic artificial intelligence, as an augmented intelligence is assumed to have good understanding of the human level, and to be moral and ethical. However, none of these assumptions is true. While the human brain typically will have good understanding of humans, and hopefully will be highly moral and ethical, the power of the augmentations can easily make the augmented whole unable to really understand the non-augmented humans. And, as pointed above, the human-level moral and ethics probably will prove

non-working and thus inappropriate on a level of vastly more powerful intelligence - thus leaving the augmented whole on its new level without moral and ethics.

In the best case, the human brain will try to compensate for this and bind the value system and the decisions to the human level. However, the difference in the intelligence level between its non-augmented and its augmented state will make this bind impossible. What appears to the augmented intelligence the only logical step, to the human-level one might be a fatal mistake. (For example, the augmented level might be able to predict how the killing of 6 billions of humans might lead in the far future to the happy life and flourishing of hundreds of billions, and thus to consider it justified.)

It will be extremely hard for the human-level intelligence to notice the logical mistakes of either the artificial or the augmented intelligence – even the human intelligence that the latter augments. Moreover, the classic artificial intelligence will be watched carefully by a lot of people, and some of these would have special training and/or powerful tools for detecting its mistakes. The augmented intelligence will be closely watched probably only by the single human brain that it augments, and that brain might have neither the training nor the tools for detecting mistakes. In addition, it will probably be busy to use the power of the augmenting module instead of to dedicating its time and efforts to detect mistakes in its conclusions. So, the human that is being augmented will have very small chance to detect a critical mistake.

And this is not the worst. The people who run and watch an artificial intelligence will probably be chosen through a rigorous evaluation of their abilities and suitability for the task. Also, they will constantly control each other - even if there are ones wanting to abuse the AI power, they will have to overcome a far bigger number of colleagues. An augmented intelligence will almost surely will be controlled by a single entity, thus making the peer control impossible. Also, this entity will likely not be chosen by stringent criteria, but will just be the one who does the development, or who pays for it. Most entities who are able to pay the expenses on creating a top-power AI are extremely competitive, valuing victory above anything and ready to pay and risk a lot for it. This makes highly unlikely that they will help the emergence of many other augmented entities - especially if the development of that AI is closed and / or secret to a significant degree.

Summary

- Moral and ethics emerge on every new level of development anew
- That requires having many entities (eg. persons) on the new level, organized in different groups
- A Singularity-created level of intelligence, if alone, might be unable to emerge moral and ethics.
- This is valid for both artificial intelligence and assisted intelligence.
- The consequences of this inability for the humankind might be devastating, including for the new level of intelligence.
- The only way to avoid that is quickly providing big enough population on the new level.

POSTED 10 MONTHS AGO #



SeekTheLimitless-
ICTX
Member

There are other possible contenders, including the free software community which has several projects for AI and tools developed. Advantage of ensuring availability and also the structure of it where literally anyone can contribute makes it ripe for innovation; pure computing power might be a limiting factor but there are ways around this. University and pure research labs are another possibility especially since AI is increasingly used for data analysis.

POSTED 10 MONTHS AGO #**eldras3**
Member

Power over others is only sought in one's immature state.
There is more gratification seeking general lovingness to all ([agápē](#))

POSTED 10 MONTHS AGO #**alex.stremsky**
Member

@SeekTheLimitless-ICTX: University and pure research labs usually use for data analysis highly specialized AIs. (The more specialized the AI, the cheaper is to develop it, or the more powerful in its area it can be made for the same money.) These have the area specialization, but not the inter-area integration abilities that are required to achieve the Singularity.

The current state of development of the free software projects and tools I am aware of, is far from making them real contenders in the Singularity race. If they were powerful enough to be in the race, they could be game changers with respect to the conclusions made in the post above. Especially if they provided a free access not only to tools for developing AIs, but to participation in AI development teams and to platforms that make this development convenient.

Two years ago, I designed a distributed pattern recognizer network algorithm, which allows practically unlimited scaling and flexibility, based on relatively simple principles. It would be an excellent tool for creating powerful universal AIs, and avoids many of the deficiencies of the algorithms I know. My plan was to implement it as free software. To increase its adoption, i planned to use its functioning as the work needed to mine a cryptocurrency that proves contribution of computing resources to the AI development. Unhappily, since then I could not muster the resources to develop alone the software that implements it, or to find people interested in helping with that. (Also, I could not develop a PR proof-of-work algorithm beyond a simple redundancy-based check, which appears to me sub-par in the context of cryptocurrency mining.)

@eldras3: A system of interrelated information (for a lack of better term I call that "thesaurus"), for example a human mind, can be built over axioms that make achieving maturity in the aspect pointed by you very hard, or even impossible. Many - in fact most - of the state heads in the world currently are a living confirmation to this. Many of the heads of the Singularity race entities are too. (Which is not strange. Putting competition above cooperation is the primary mode of work of all current Singularity race contenders, and this determines the axiomatic base for the people appropriate for being their heads.) In a perfect world it would be otherwise, but our one is imperfect, and we must account for this.

POSTED 10 MONTHS AGO #**alex.stremsky**
Member

The optimal strategy for the Singularity-born intellects includes protecting the lower-level intellects, eg. the human ones, from their own influence. That includes allowing the human-level intellects to take all decisions about themselves – except maybe ones that will cause a big loss of thesaurus width. (A further post might deal with the post-Singularity relations between the different intellect levels in greater detail.)

Such a strategy however requires the existence of cross-level ethics. Its development needs a developed intra-level ethics on both the human level and on the Singularity intellects level (which in turn requires multiple entities, organized in different groups, on each level). Also,

maintaining it requires a mostly unrestricted flow of intellects between the two levels. (For simplicity, this part of the analysis assumes the existence of two intellect levels only: the principles determined by it are extendable to a multi-level system.) That is, most human-level intellects must be able to achieve the level of the Singularity-born intellects, and this must be available readily enough to happen on a regular basis. Not following this strategy will make the further development of the Singularity-born intellects level much more harder and ineffective. (Following it will also meet some problems, which might be discussed in a further post.)

This requires the Singularity race entities to be committed to releasing the "intellect technology" to anyone wishing to use and improve it, both after (if) they win the race, and during the race itself. Given who these entities currently are, this is highly unlikely. Not doing that however might have bad, maybe devastating consequences, including for the Singularity race entities, and even for the race winner(s).

Preventing these consequences is only possible through reliable mutual control and cooperation between the race entities and winners, of a level that might require unprecedented openness and sharing. These cannot be developed and made acceptable to the current Singularity race contenders within a short time. It is wise to introduce awareness of the Singularity race problems and start introducing measures to create the necessary control and cooperation protocols as early as possible.

If we don't succeed to convince a prevailing (by development resources) majority of the Singularity race entities into developing this cooperation and mutual control, most probably we will face one of two possible outcomes.

The military outcome

As the Singularity will give power beyond anything the humankind knows currently, entities with the competitiveness of the current Singularity race ones will see it mostly, if not only in one way. Namely, as a game in which the winner takes all, and all others will be destroyed or enslaved forever. Consequently, these entities will consider justified any possible means to win the race, or to prevent another entity from winning it. Many of them would prefer even mutually assured destruction to losing it. And some of these entities control some of the most powerful military arsenals in existence.

If the race goes in this direction, the situation might get nasty even before any classic military means are used. First, some race contenders might start hybrid wars against other ones, often causing a huge collateral damage. (These wars might bring the military means in the game even at this early stage.) Then, the leading Singularity-potentiating (eg. AI) facilities and experts of every contender might be preemptively targeted by its adversaries. Protocols that protect their existence and safety might be introduced, but likely will not be followed for long, if at all. Finally, a point will come where avoiding a full-blown military conflict might be very hard, maybe even impossible. (The nature of the Singularity requires much more trust between the adversaries than any other global danger we have faced. Achieving that level of trust in a short time might be impossible.)

The most powerful players might be convinced that they will win a clash. However, such a clash will also involve the best achievements of their adversaries. An even less powerful, but specialized and thus militarily more effective near-Singularity product might change the balance. Also, if one player starts gaining advantage, others might secretly unite against it. The result will be less race participants, which will make the situation even more competitive and unforgiving.

Another part of the situation will be that in a "winner takes all" situation the key military assets will be defended to a degree that might make targeting them unreliable or even useless. That might justify from military viewpoint attacks on softer targets, eg. a country's population and territory. The near-Singularity advancements will make these attacks highly effective, and even if the retribution will be the same, some players

might see them as justified, especially if they have much more of the resource being attacked, and can afford big losses of it. The result might be more devastating than anything the human history knows.

The “winner takes all” situation will persist through the development of the conflict, pushing the adversaries into more and more desperate measures. As their number decreases (due to some of them falling out of the game or uniting), the danger of a loss and the urgency of taking any measures to prevent it will grow. This might escalate the conflict into using not only the full nuclear arsenal of the humankind, but also its full biological arsenal. The latter has some “doomsday weapons”, able to exterminate the humankind completely, or to reduce its numbers into the thousands or even the hundreds.

In theory, this danger can be mitigated to a degree by agreements that the winner will give the others a degree of protection and / or will share with them the Singularity benefits. However, no serious politician will expect a treaty to be observed by a partner whose power puts it beyond effective control - and the Singularity-brought power will be exactly that. The only solution that can gather enough trust is that all the race entities will go through the last near-Singularity stages of development together. That can happen only through the openness and sharing described above.

The oligarchy outcome

Still, in longer term the military outcome might turn out the better of the two. The chance that it will completely exterminate the humankind is relatively small. If that doesn't happen, even if only a few hundreds of humans survive, in several tens of thousands of years the civilization will recover to the current level. There is some small risk that imperatives might be passed through the generations to avoid seeking the Singularity or its key developments, but even if that happens, these will eventually be circumvented... The losses on this road will be horrible, but the other outcome might still be worse.

As said above, all current Singularity race contenders are extremely competitive / non-cooperative, and every one of them considers most or all of the others to be threats to its existence. If one of them beats the others to the Singularity, the first thing it will do will most probably be to block everyone else from joining it. The result will be that the new level of development will be populated by a single entity, thus not allowing the development of moral or ethics on it. Also, there will be no flow of intellects between the new level and the current humankind level, thus stunting the flow of information between them - they will be separated by an uncrossable gap. (An important part of the information is the context it is interpreted in - that is, the intellect that interprets it. Supplying to another level of intellect entirely an information only, without also an intellect from its original level to interpret it, strips it of its original interpretation, which is most of the value it usually will be sought for.) This block will eventually bring the further development of the civilization as a whole to a halt.

A possibility exists that the race winner can gain a big advancement advantage, and then allow the others to develop, keeping a “safe distance” between itself and them. However, such a process still creates a gap between the levels; the gap being dynamic instead of static does not change much. In addition, a dynamic gap is unstable in the time. The leader is subject to disruption both from “spikes” (sharp development breakthroughs) from the pool of the followers, and from its own development. To bring the chance for being disrupted down to near zero, the leader must maximize the distance to the followers, increasing the gap size. That in turn will further obstruct the vertical exchange of information, and thus the supply of thesaurus width from the lower level. And that will leave the leader increasingly vulnerable to the disruptions its own development will generate, thus forcing it to slow down and eventually stop its development (and consequently the development of the followers, to prevent them from catching up with it).

In short, the post-Singularity continuous development is impossible while having a gap between the higher and the lower intellect levels. And a race win by any of the current entities, if it keeps its current competitiveness, is bound to produce a situation where that entity imposes a gap

between it and everyone else. Consequently, the development of the civilization in median term will slow down and eventually stop for a very long time. Much longer than the recovery time from a military conflict that almost exterminates the humankind. Probably much longer even than the humankind thesaurus at this degree of development will be able to maintain its existence.

Another way to say the same is that a dissipative information process, eg. the development of the human civilization, forms a pyramid of intellect levels. The higher levels have dissipated further, and thus are more powerful, but their thesaurus width (diversity) is smaller. (Despite that the amount of information they contain will probably be much larger.) Further yet dissipation will narrow their thesaurus width even more, and from some point on this will limit the effectiveness of the dissipation. The resources needed to achieve the same amount of advancement will start growing exponentially and soon will exceed every possible supply.

The only way to avoid this is to supply thesaurus diversity from the lower levels to the upper ones. This supply will be severely hindered, maybe completely blocked by the inter-level gap. (See above about transferring information without the intellects that interpret it.) The result will be especially bad if the gap is very close to the pyramid top, eg. only one entity is above it. The far larger bottom part will be blocked from developing, and the far smaller top part will quickly exhaust its development potential, which is very small due to the small diversity.

The reason for establishing the gap doesn't have any effect upon the information dissipation / evolution dynamics of the gap-containing thesaurus. A benevolent peacekeeping intention produces the same result as a maniacal world dominance obsession. (The first might be willing to narrow the gap more than the second, this improving slightly the ascending thesaurus width supply, but not anywhere close to what the potential development power of the humankind thesaurus needs.) Thus, the negative effects will be present and most probably at their full extent even if the reasons for the creation and the maintenance of the gap are perfectly benevolent.

Avoiding these developments

Theoretically there can be many ways to avoid creating a Singularity that will produce a thesaurus with a gap-separated top. However, only one of them appears realistic. The Singularity race entities must become aware of these problems and possibilities, to the degree of understanding them and taking the necessary steps to change themselves as needed to avoid them.

One possible way to bring this awareness to the race entities is to create a Singularity think tank that is a place for cooperation between the entities. Its goal must be to bring to its participants advancement through cooperation. The results it achieves should be big enough to make it attractive to the entities and internationally recognized as a leading authority on the Singularity matters. It must be positioned as a strictly nonaligned organization.

It must aggressively attract as associates the world best experts in Singularity-enabling areas, including ones from every race entity – even the authoritarian ones. This will naturally establish a degree of openness to build on, personal contacts to grease the rough stretches of the road, and an image that can be trusted by the race contenders. It will also provide the capacity to bring results to its participants.

Such a think tank might be able to convince most contenders that introducing the needed degree of cooperation can give a lot, while keeping the competition unchecked will probably lead to mutual destruction, and to eventually unite them against the contenders who wouldn't participate in that cooperation.

Seeking for it a right to enforce its decisions on the race contenders must be avoided, even if it is possible: this will turn it into a focal point for power struggles, thus destroying its credibility. Being able only to consult the contenders, if its work is transparent enough, will give it the base

for the credibility it will need. Bringing on board the best among the world's Singularity-oriented minds will build on this base to achieve the authority it needs to mitigate the problems outlined above.

To attract the Singularity experts, this think tank should actively work on the Singularity related topics, exploring the newest and the best in them. One of these will undoubtedly be the development of AI. Another might be researching the Singularity process and the changes it will bring in key areas, eg. politics and military. Yet another might be seeking ways to encourage the race contenders to cooperate as much as possible. In fact, determining the best topics to work upon might be one of its most important areas of work.

There might be concerns that malicious race entities will use their contacts in it to spy on the advancements of the other ones. This will surely happen, but the danger from it is smaller than it appears. The malicious race entities will be able to obtain all or almost all of that know-how by other lines of spying too. At the same time, such a think tank might be the only way to pass to such an entity the awareness about the problems described above. (One of these problems is exactly that a malicious entity effectively denies to itself most benefits from the Singularity even if it wins the race.) So, the benefits from the openness might outweigh its risks.

There might be other good ways to spread the needed awareness, too. However, there are also many ways that only appear good, but actually will fail. A discussion on the topic might help to predict the actual success of some or all of the ways discussed.

The Singularity University cannot fulfill this mission. It has been created with a completely different one – trying to straddle both might lead to failing at both, since they require incompatible directions, structures, affinities and actions. At the same time, many of the Singularity University personnel might be the most appropriate people to create such a think tank. One of the most important suggestions in this series of posts is to them – to consider the idea of creating such an organization.

POSTED 9 MONTHS AGO #



Cort
Member

alex.stremsky Your way too strung out!! I highly recommend that you have a few shots of tequila and find a girlfriend If you don't already have one.

POSTED 9 MONTHS AGO #



alex.stremsky
Member

@Cort: And find some soft sand to stick my head in when problems are coming, I guess?

POSTED 9 MONTHS AGO #



No, just try not to trouble yourself so much with the world's problems. Take some time to relax and enjoy. There are lots of smart folks on the planet that are helping things progress nicely!!

Cort
Member

POSTED 9 MONTHS AGO #



Cort
Member

If you have to vent though and get it out this is a good place to do it I guess :)) I think we all agree this could be some scary ***** if things go wrong!

POSTED 9 MONTHS AGO #



alex.stremsky
Member

The folks who help things progress nicely are those who don't only vent out because "there are lots of smart folks who help things progress nicely".

The way for the things to progress nicely is that when someone identifies a problem ahead, they start making noise, concerned people gather and take measures. Otherwise, things progress less than nicely.

For example, I spend time and efforts on this topic precisely because no "smart folks" consider these aspects. Either there is some peer review, and if the problem is confirmed, the procedure on helping things progress nicely is started, or otherwise. It is that simple.

POSTED 9 MONTHS AGO #



DSM
Member

A singularity in a remote location that is initiated later could still out grow another if it has the good fortune to be an a significantly denser part of the universe and therefore has less limitations on growth dictated by, ultimately, the availability of resources and the speed of causality. Clearly this is more relevant at interstellar scales, but the universe is a lumpy place so who knows where the ideal place to be is. I suspect that a super AGI would realise that one of it's priorities would be to expand in the direction of such a higher density place and it's nature would then be anisotropic across space-time. It could start on Earth, then leave very soon afterwards, leaving humanity with very advanced technologies but not in a state of continual advancement, in fact we could find ourselves trapped in a static local maxima.

POSTED 9 MONTHS AGO #



Cort
Member

<http://www.kurzweilai.net/beneficial-ai-conference-develops-asilomar-ai-principles-to-guide-future-ai-research>

POSTED 9 MONTHS AGO #



alex.stremsky
Member

@DSM: Yes, this definitely is a possibility.

I can only add that this super AGI might (and probably will) transfer its main resources to the higher density place, but will also leave here an interfacing resource. If I am able to see that the lower development level has wider thesaurus, and thus theoretically greater development potential, they very certainly will too. Consequently, if their axiomatic base mandates maintaining a gap between them and the lower levels of the civilization thesaurus, they will have to ensure the persistence of that gap. And if their base does not mandate a gap, they will need here an interface that provides ascending flow of thesaurus width from our level to theirs.

@Cort: Yes, this is an excellent example on why this analysis is needed.

The Asilomar principles were what pushed me to devote time and continue this thread. It is essentially a work in the Longer-term Issues (Principles 19-23) area. The fact that it was started two years before the Asilomar conference doesn't change that. (I planned to attend that conference, but depended on sponsorship which never arrived.)

POSTED 9 MONTHS AGO #



eguile
Member

For Immediate Release

Artificial Intelligence is probably the weightiest issue facing the world over the next 15 years.

The Singularity Prize is a novel that embraces superintelligence and illuminates the salient points surrounding its inevitable emergence. **The Singularity Prize** examines the ethical system needed for safety.

Portland, Oregon November 14, 2017

Mayshouse Press announces the publication of The Singularity Prize on December 5, 2017. **The Singularity Prize** novel is aimed to be a major stimulus to the discussion needed in the public domain about a technology that, heretofore has been confined largely to computer specialists. The book is written for the general audience as entertainment and education about a rapid technological development that affects everyone's lives today.

"Artificial Intelligence has the greatest potential for good as well as a distinct risk for disaster."

The Singularity Prize

In 2030, our planet teeters on the brink of political, economic, and environmental catastrophe that threatens our collective survival, will Professor Julian Marshall be able to save us all as he navigates the crisis-riddled, yet superintelligent world of the near future? Climate change, poverty, epidemic disease, human conflict, terrorism, and famine ravage the globe. Amidst the chaos, the United States and China compete for the thirty-billion-dollar Singularity Prize to be awarded by a hedge fund billionaire to the team that creates a machine intelligence superior to humans. With hackers entrenched in a cyberwar that cripples the grid in multiple countries and a nuclear weapon threatening a major city, Julian Marshall, leader of the Berkeley based US team, knows that a recursively improving superintelligence with inviolable ethical codes could be humanity's only hope.

Love and betrayal threaten Julian and his team of coders, distracting them from their life-or-death task. Meanwhile, the deep vaults of our primeval past extend a long arm of intelligence and survival to Julian's world of 2030. Arion and his clan's collective intelligence survived the

great Toba volcanic eruption around 74,000 years ago and began the great migrations out of Africa to populate the world. Could this tribe of the past hold the key to surviving the future? The Singularity Prize is an epic chronicle of humankind's potential grandest triumph.

About the Author

Earl Ernest Guile is the author of *Secrets to a Richer Life: Illuminating Wisdom from the Human Family on the 37 Ultimate Questions*, and *Antarctic Collapse* (a novel about climate change). Guile is an epidemiologist and a former university professor who studied at Morehouse College, Bowdoin College, the University of Pennsylvania, the University of California at Berkeley, and at Harvard University. He has two sons and a grandson, practices Tai Chi, has traveled to over sixty-two countries, and presently resides with his wife in Portland, Oregon. Visit his websites at <http://ernestguile.com/>, <https://eguile.wordpress.com/>.

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