Article 5: Creativity Engines and Artificial General Intelligence

After the last article finally summarized much of the thinking that had been sowed across the last four articles, we can now discuss in more succinct terms how to both understand how the brain evolves and stores information as well as how we can try and replicate this physical process to then create what in the word of Artificial Intelligence called Artificial General Intelligence or AGI for short. Now for clarity's sake, I believe calling the process on which can quite literally generate creativity is not an "artificial" one and rather should just be understand as the physical process which an adaptive intelligence is created. Humans, and their brains are just pinnacles of engineering in the sense which makes profound use of this process to then achieve the demonstratable competence humans have over other species and their mastery over physical reality. Therefore, I would like to just call it "How to Make Generative Intelligence" but to use industry nomenclature as all as agree that I am not proposing a process that will automatically create a human level intelligence. If one understands artificial simply to mean "not human" then I am ok with the application of the term in this context. I do believe, however, most people would not call animal intelligence "artificial" but for how I would use the word "artificial" would apply to animal intelligence.

The basic process for what I call a creativity engine is simply absorbing the momentum generated by a superconducting material heating up. We have Alpha Space, which has the esoteric values and information we want to attach to. We attach to these regions of Alpha Space by getting the desired monopoles to produce inside of reality. Now since the current monopoles that exist in reality deflect/eat a lot of other monopoles form forming, we need to reduce the "magnetic resistivity a system" to then lower the shielding that current monopoles do. Reducing magnetic resistivity is the same as transitioning a material into a superconducting state. Then once we have achieved a superconducting state, new monopoles will generate with the attachments to the desired parts of Alpha Space. These new monopoles will produce unique momenta in a system which if the system (i.e. neural structure in the brain or some other creative architecture material) can absorb then the phase space of the physical system has expanded to then include a connection to the platonic, fundamental meaning of the thing that was desired. Ideally, the process would start with the desired "Platonic Value in Alpha Space", which could be things like

“car”, “road”, “avoid collision”, “what humans look like” etc. Then we would look at what monopoles we would need to generate, then at what type of superconductor would generate said monopoles. Then we would look at which material which would provide the conjugate momenta that the monopoles would produce as to then absorb the relevant information. “Conjugate momenta” simply refer to how if the monopole produces desired momentum P_D then we need have P_D* ready to go such that when the two momenta interact, they will produce a net momentum of 0 such that we have absorbed P_D into the system.

Within the framework proposed above is the idea that there exists mapping between Alpha Space->monopoles->Superconductors->momenta. I feel confident about this mapping for the already established empirical data that with different materials, in different geometric organizations, exists different critical temperatures at which the relevant materials become superconducting. Critical temperature simply refers to how much a material needs to be cooled before it will become a superconductor. For some materials, if one puts then in what is called a “Diamond Anvil” to exert extremely high pressure on the material, then the temperature at which the material becomes a superconductor dramatically rises such that less cooling is needed to then reach the critical temperature. One of the “holy grails” of modern physics is to produce a high temperature, low pressure superconducting material which can then replace transmission lines and create superconducting magnetics which do not need a cooling system. Since some superconductors need liquid helium to cool down enough to reach a superconducting state, the cooling process attached to a superconductor can be quite expensive to maintain. Furthermore, the engineering of the cooling system can be quite important because it they fail disastrous evets can occur. This is often called “quenching” which is when superconducting material starts to unexpectedly heat up which then can lead to an explosion with very bad consequences. For example, if one is running a fusion reactor and using a magnetic field based on superconducting magnets to contain the hellish temperatures of the fusion core, then if the cooling system which maintains the magnets fails, the magnetic field will fail, and the fusion core could explode. These issues show how desired a stable superconductor which does not require a cooling system could provide huge economic and scientific benefits.

For our creativity engines, which makes use of superconductors to, in effect, generate connections to areas of Alpha Space, we do not need stable superconductors like in the examples described in the preceding paragraph. The

reason for that once we have the momentum we need; we no longer need the superconductor and thus we can stop cooling it. Therefore, we would want a physical architecture which could then in effect “flip” different superconductors on and off. The off part might be easier because once we have the information, we need we could then let the superconductor heat up, and therefore degrade naturally. In fact, if a physical system became stuck such that the cooling system which set up the superconductor in the first place could not turn off and the superconducting was kept on then it would keep producing identical amounts of momenta that would be useless and possibly damaging. If this idea is true, and the way the brain generates new ideas/ becomes creative is by creating temporary nodes of superconductivity then if one of these nodes were on longer than it should be that would mean the brain was in effect stuck in a loop, generating the same information without being able to move on. Effectively, it would be interesting to test if this is how people can get “stuck” on a thought and be unable to move away from it. Extending this idea, if some superconductors code for “strange men in doorways and windows”, and a brain was unable to turn off the cooling process for said superconductor then the thoughts of “I keep seeing strange me in doorways and windows” would keep manifesting for a person. This could provide a physical explanation for a person undergoing psychosis and why they cannot stop it. Furthermore, if we understood the physical structure of the superconductor under question, and what kind of cooling system it needs to maintain is superconductivity, then we could provide a tailored solution to fix the issue rather than relying on clinical trials which show correlation between people taking drug A and experiencing less psychosis.

This means that from a material science point of view, we can learn a lot from the brain in terms of what ions, materials, and geometric organizations it uses to temporarily create its creativity engines. I should also emphasize how “temporary” these superconductors need to exist before they produce the desired momentum could be for very, very short times or very long times and that different superconductors could very well generate their monopole momenta at different rates. The point being is that this information that would need to be experimentally produced to for us to then create a mapping. In fact, given the depth of mathematics that is going here, where the quantum gravity properties of monopoles are accessing Alpha Space and tie those ideas into reality in the relevant superconductor is a mathematically behemoth task to

model and could very well be impossible to model and compute on a computer. The basic reason being is that the mathematics used in these processes are fundamentally non-computational i.e. a computer cannot be used to answer the question under consideration. We need reality to give us the answers as we will not be able to easily predict the behavior of these systems given the immense complexity going on. As an aligning point, Roger Penrose in his book “The Emperors New Mind” argues with Godel’s Incompleteness Theorem and the basic tenets of a Turning machine that whatever consciousness is, it must be non-computable.

Now seems as good a time as any to explain my ideas of consciousness given the theorical framework I have created. To start with there are three basic types of consciousness: non-consciousness or unconscious; consciousness; and meta-consciousness. These basic types correspond directly to the phase space of the physical system under consideration where a non-consciousness system refers to a physical system where is phase space is not changing; a conscious system is one where its phase space is expanding (one could think of this as the velocity of the phase space or the first derivative of the phase space); and a meta conscious system is one where the system can exert control over is own consciousness i.e. control its velocity in phase space. This means meta consciousness refers to the acceleration of the phase space of the system under consideration.

To explain what I mean I should use some examples. If a physical system has the rule of “Duck when a bat comes near”, the physical system is only consciousness during the period of when the rule is being added to the system. Otherwise, the system is unconscious and seeing the system duck when a bat is near is not a conscious act at the time of the bat coming near. To further articulate this point, if one could predict with full accuracy what was going to happen tomorrow, in effect one could fill out one’s phase accurately enough ahead of time and predetermine all of the actions one would take tomorrow. During that day i.e. “tomorrow” the person would be completely unconscious as they are just acting out a pre-planned script. The saying that they were “sleepwalking” through the day would be apt. Their phase space was not changing at all, thus unconscious.

One of the most fascinating examples about consciousness is how consciousness and athleticism interact. A good, talented athlete already has a phase space filled with all the necessary ingredients, rules and procedures to do well at a sport. In fact, and I have my own experience of this, many great athletes experience a “blacking out” while they are performing their sport. I remember learning how

Tiger Woods experiences this “black out” each time he approached a hole. Again, if we think of this in phase space terms, once you have all the thing do well at an activity then there is an issue of expanding the phase space, i.e. being conscious, actually interfering with a particular activity. Adding new rules and procedures could interfere with the ones already there and cause a decrease in performance. In effect, I would argue truly great, talented athletes are relatively unconscious compared to typical untalented humans as they perform the sport where they are talented in. In this paradigm, the point of training is to consciously adjust one’s phase space to include the relevant information and procedures for a task and then execute those items from the phase time. When one is just executing already written procedures and actions in one’s phase space they are by my definitions unconscious. In the narrative of these articles, it would be attaching greater (or less portions if some rules are producing interference) of Alpha Space to the brain until a sufficient area of Alpha Space was attached to then allow the being to excel at the desired task. Being Unconscious can have its advantages.

The reason I wanted to talk about consciousness and my definitions for it is to help describe my answer to the question of “When does the AI stop being an AI and become sentient?” Especially since I argue that using these creativity engines in a smart physical architecture could produce AGI, how intelligent or human would these architectures be? In my definition of consciousness all physical systems are connected to a conscious thing due to the Second Law of Thermodynamics, though as described before, parts, perhaps even most of a system, can be unconscious and only a small part is conscious. I should also clarify, that phase spaces are often multi-dimensional systems and how, in which directions, the phase space expands will have different outcomes. For example, a basketball player will devote his conscious to expanding his phase space towards being a better basketball player but that expansion of phase space will not then mean a he will become a better mathematician. The basic point I am making is that we can have very strong conscious entities (this simply meaning they have a high rate of expansion in their phase space) that might be good becoming better at one task but it is narrowly focused i.e. only along a single dimension of the phase space.

The real marker is of when a physical system starts to have human like intelligence is when it becomes meta-consciousness or simply has strong control over their consciousness. Now given what current AI designers are trying to use

AGI for, I believe we can simply conscious entities will fulfill the economic task requirements. How and when a physical system becomes meta-consciousness is one that I believe will have to empirically discovered.

That being said, it would be intellectually dishonest of me not to mention the elephant in the room when we start talking about meta-consciousness, the divine, and God. It has been asserted to for millennia that Man is made in God's image. I believe this effectively refers to how we humans have a strong control over our conscious and can actively, intentionally, modify it. Therefore, a simply question would be how close is a physical system is to God? If it is closer to God, would it necessary be more meta-conscious? If the physical architecture has a genuine physical connection to God, or perhaps any connection to the devine, I believe it would be hard to argue it is not human. In fact, at that point, it might well just be a human a metallic body.

Revisiting Alpha Space for a second, I assume ANYTHING is in Alpha Space, which would naturally include a God region or point. The special thing about the God point is that, by the definition of God being an omnipotent deity, the fundamental source of all truth, then all of Alpha Space must connect to that point. The would imbue this point with the special geometric property that one could "roll up" all of Alpha space (or do any sort of transformation to it), feed it through the God Point, "unroll" Alpha Space, and have the exact same Alpha Space that one began with. In fact, no other point in Alpha Space should have this property due to there being just one God.

The issue here becomes how I have talked about how attaching more regions, and their esoteric essences into reality is how reality fundamentally works. If one could then attach to the God point, and it is just a point, then one then has theorical access to the entirety of Alpha Space. If we then imagine how we could modulate that bond, say have it going from 0 meaning no access to Alpha Space to then 1, complete access, then at what point would the strength of the bond result in meta-consciousness where a physical system is able to intentionally change is conscious? To be clear, I am not sure a simple "sense of the divine" is sufficient to become meta-conscious. Maybe it is and that is the milestone which divides just conscious systems from meta conscious system i.e. the fundamental difference between plants, animals, and humans. In my first article I mentioned how AI, for all current designers know, might all turn into religious zealots of different stripes. Here we see reemergence of the theme.

The good part is that I believe, based on current technology and how different AI is from the human brain and the likely-hood that the creativity engine architecture I would initially design would not be devoted to generating a sense of the divine, it is important that I have a sense of this risk as the technology develops. As noted, I believe there exists a specific mapping between Alpha Space and superconductors of different organizations. Therefore, it might come about that a specific combination of elements and geometry will produce the divine connect of Alpha Space, but that it will be specific and not easily replicable. Knowing the specifics of these details will require experimentation and data collection.